

# Incorporating TK in to EIA

Poster presentation by Alan Ehrlich, Martin Haefele and Chuck Hubert  
IAIA International Conference 2011, Puebla, Mexico

*“We're here because our cultures and histories are intertwined with yours and the decisions you make... will either diminish us as a people - or else enable us to protect what's basic to our identity and our culture and our values.”*

- Chief Darrel Beaulieu, Yellowknives Dene First Nation, November 26, 2003

## Introduction

The idea that Aboriginal/Indigenous Traditional Knowledge (or “TK”) can and should be a part of EIA is widely accepted in many EIA systems. In Canada’s Northwest Territories, the Mackenzie Valley Environmental Impact Review Board (the Review Board) has over a decade of experience in using TK in its EIA processes. This poster describes some of the Board’s experiences and conclusions on challenge and value of taking evidence based on Aboriginal TK on par with evidence based on conventional science.

In this poster, TK refers to what Berkes (1999) defined as is a cumulative body of knowledge, practice and belief (including values) handed across generations.

The Review Board is a court-like co-management tribunal that is legally required to include appointees from Indigenous organizations. It has published guidelines on how to incorporate TK into EIA (available online at [www.reviewboard.ca](http://www.reviewboard.ca) ). These guidelines prescribe how TK should be applied at every stage of the EIA process. This poster examines the Review Board’s experiences in doing so.

The Review Board’s experience provides real-life demonstrations of multiple roles for TK in every stage of the EIA process, including:

- Initial screening and referral of projects for assessment
- Scoping of priority issues
- Project design and modification
- Baseline studies and impact prediction
- Hearings
- Significance determination
- Final decisions and measures

We present three case studies below. These reflect a range of types of developments and scales of developers. One examines a small diamond exploration development proposed by a junior exploration

company, one an oil and gas project proposed by a multinational company, and one focuses on transportation infrastructure proposed by a base metal mining company.

## **Case Study #1: Consolidated Goldwin Ventures**

### **Project and Setting**

In February of 2003, Consolidated Goldwin Ventures Ltd, a junior exploration company, proposed a small diamond exploration project on the North Arm of Great Slave Lake, in the Canadian sub-arctic. The project was to be located in the traditional area of the Yellowknives Dene First Nation, an area without settled Aboriginal land claims and without land use planning. TK was involved in the following stages of the assessment:

### **TK in the referral and scoping**

The developer applied to the Mackenzie Valley Land and Water Board, an organization responsible for conducting screenings, in February 2003. Yellowknives Dene First Nation held a two day workshop in April of 2003 with several community members including Elders to identify culturally significant attributes in the vicinity of the proposed project. The results were submitted to the MVLWB, which then referred the project to the Review Board based on concern regarding cumulative cultural and social impacts on an area important to traditional use.

The Yellowknives Dene First Nation indicated over the course of the assessment that TK relating to the importance of the area was the major basis for those concerns. They noted that the area held important cultural sites yet was poorly studied from an archaeological perspective. The issues identified in the referral (originating from the First Nation's concerns) formed the basis for the scope of the issues on which the assessment focussed. Thus, TK was a driving force behind the referral of the project for an environmental assessment.

### **TK in baseline studies and impact predictions**

The Review Board received three other referrals for similar types of developments in the same area at the same time. It commissioned an independent cumulative effects study to examine combined pressures from all developments and relevant regional issues (described in detail in Ehrlich and Sian, 2004). The report from this study was intended to be a useful resource for parties to consider when submitting their own evidence. The Review Board later concluded that TK was under represented in the cumulative effects study it commissioned. The Yellowknives Dene First Nation and the North Slave Metis Alliance (another Aboriginal group) submitted TK information but later withdrew it due to confidentiality concerns.

The Yellowknives Dene First Nation then conducted its own original 11 day TK field research program in the area, using a team of Elders, youth, other band members and two archaeologists. This field program identifies numerous unrecorded heritage resources such as grave sites and tent rings, and geo-referenced these into a TK map complete with traditional place names. A total of 64 new heritage sites were discovered ranging from pre-contact times to contemporary historical sites.

This study was submitted to the Review Board under confidential cover (to protect intellectual property rights). Based partially on this, the Territorial Government described the area as a cultural landscape. ("Cultural landscapes" embody the traditional knowledge of ancestors, past and present relationships,

spirits, wildlife, fish and plants, and knowledge of biodiversity and ecology [Buggey, 1999; Andrews and Buggey, 2008]).

### **TK in the hearing**

During the hearing, the Yellowknives Dene First Nation provided its impact predictions, largely relating to cultural impacts. Elders speaking from a framework of TK told the Review Board at length of the cultural meaning and vital importance of the area of the proposed development. The First Nation described why they were participating to such a degree during the hearing:

*“We’re here because our cultures and histories are intertwined with yours and the decisions you make on Drybones Bay and Wool Bay will either diminish us as a people - or else enable us to protect what’s basic to our identity and our culture and our values.”*

- Chief Darrel Beaulieu, Yellowknives Dene First Nation, November 26, 2003

### **TK in the Review Board’s decisions and measures**

Citing the evidence from the YKDFN, which was largely based on TK, the Review Board made particular measures to prevent impacts to cultural sites. It required the developer to be accompanied by an Aboriginal elder, a translator and a qualified archaeologist to identify any archaeological, burial and cultural sites along the proposed access route and drill locations. The Review Board also created measures that change the project, by restricting it to operating on lake ice or overland access on packed snow to ensure that direct impact to suspected archaeological sites is minimized or avoided.

### **Conclusions from the Consolidated Goldwin Ventures Case Study**

TK clearly was important to many parts of the assessment.

1. TK helped drive the referral to environmental assessment
2. TK helped identify the priority issues
3. TK was of vital importance to the original field program of the Yellowknives Dene First Nation, which was responsible for a much better understanding of baseline conditions and better impact predictions
4. TK was prominent in the hearing, often delivered directly from Elders
5. TK considerations were important to the Review Board’s significance determinations, decisions and the measures that resulted.
6. TK resulted in modification of the project to avoid impacts.

## **Case Study #2: Imperial Oil Geotechnical Project**

### **Project and Setting**

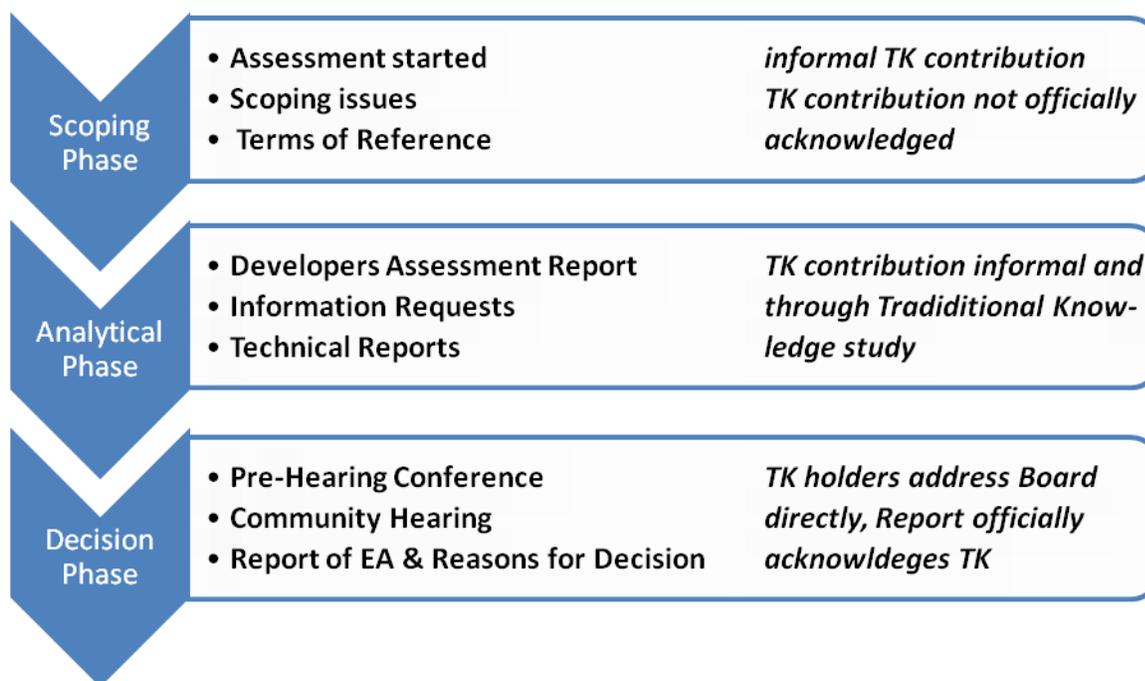
The developer proposed to investigate sub-surface conditions for a possible pipeline along a 450 km route. The project was to be carried out over one or two winters. The developer planned to re-open 400 kilometres of existing seismic lines and trails (some of it re-grown) and to create 45 kilometres of new access in areas of original growth. The proposed operations involved setting up rig camps, clearing work sites, and drilling holes to study potential gravel sources as well as permafrost conditions. At larger river crossings the developer planned to

undertake in-river drilling. The proposed equipment included bulldozers, graders, backhoes, drill rigs on tracked carriers or sleighs, helicopters as well as various trucks and smaller vehicles.

The region supports a variety of ungulates, large carnivores, fur-bearers and small mammals, including rare species like wood bison, woodland caribou, grizzly bear, and wolverine. Moose and caribou are of special economic importance to surrounding communities, particularly as traditional foods. There are five largely aboriginal communities with traditional lands in the area of the proposed development who's inhabitants continue to use many hunting, fishing, gathering, and spiritual sites within the development area. The Dehcho First Nations have not yet settled land claims but negotiations are under way and an Interim Measures Agreement addressing land and resource management issues and land use planning exists.

### TK in the Impact Assessment Process

The following graphic summarizes how and when traditional knowledge influenced the impact assessment process.



### TK in the referral

This project applied to the Mackenzie Valley Land and Water Board in October 2003. The Land and Water Board did not refer it to environmental assessment. Several First Nations wrote directly to the Review Board to require an environmental assessment despite the Land and Water Board's decision. In February 2004, the Review Board decided to conduct an assessment on the proposal. Thus, this project was only subjected to environmental assessment following petitions from all potentially affected communities. It is reasonable to assume that traditional knowledge played an important role in motivating community leaders and likely influenced their actions throughout the process. This is an example of how Traditional Knowledge may also have influenced the assessment in indirect ways that were important yet hard to quantify.

### **TK in baseline studies and impact predictions**

The developer collected TK prior to the application, which resulted in several design changes, such as re-routing of the pipeline corridor. This was reflected in the Developer's Assessment Report that it submitted to the Review Board. In September 2004, the Review Board issued a formal information request asking the Smbaa K'e Dene Band to describe what it is about a particular watershed that is culturally important. In response, the Smbaa K'e Dene Band produced an original Traditional Knowledge study, complete with maps that identified several areas of cultural or spiritual importance, as well as areas of particular ecological sensitivity. This was submitted to the Review Board under confidential cover.

### **TK in the hearings**

In the hearing, the Smbaa K'e Dene Band presented its TK study. Numerous Elders from several communities shared their TK regarding areas of cultural or spiritual importance, and contributed to the understanding of wildlife behaviour and anticipated changes in wildlife behaviour in response to the proposed development.

### **TK in the Review Board's decisions and measures**

There were ways that traditional knowledge affected the Review Board's decisions. During the assessment the Review Board relied on traditional knowledge to evaluate the significance of potential impacts from the project and to design mitigation measures. In most cases this manifested itself in the Review Board accepting the cultural, spiritual, or ecological significance of an area or location and requiring changes or limitations to the project accordingly. In one instance the Review Board rejected the proponent's analysis of wildlife impacts based on relatively short term scientific observation. Instead the Review Board relied on the long term traditional knowledge base, which spans centuries of oral history.

### **Conclusions from the Imperial Geotech Case Study**

All sides, the Review Board, the First Nations and, possibly to a lesser extent, the developer, made great efforts to integrate traditional knowledge into the environmental assessment process. The First Nations provided written submissions and made presentations to the Review Board that highlighted to most important points to the board and its staff in a manner the mostly scientifically trained members and staff could understand. The Review Board in turn allowed elders to provide site specific input into mitigation measures rather than imposing general conditions, which would be more in tune with the way land use is generally regulated. Clearly a number of mitigation measures imposed by the Review Board (such as exclusion zones) were largely based on traditional knowledge as the Review Board explicitly rejected the developer's conclusion and accepted those of the community. What is unclear, however, is to what extent the submissions made by community leaders were informed by traditional knowledge. Traditional knowledge undoubtedly played an important role in the environmental assessment, but it remains impossible to quantify.

As in the previous case study, TK played an important role in many parts of the assessment:

1. TK prompted letters from communities that resulted in the Review Board requiring the environmental assessment
2. Early TK consideration by the developer several design changes, such as re-routing of the pipeline corridor.

3. The formal TK study led to a greatly improved understanding of baseline conditions and better impact predictions
4. TK was prominent in the hearing, often delivered directly from Elders
5. TK considerations were important to the Review Board's significance determinations, decisions and the measures that resulted.
6. TK resulted in changes to the project to avoid impacts.

## **Case Study #3: Prairie Creek Mine Access Road**

### **Project and Setting**

The Prairie Creek Mine is located 90 km northwest of Nahanni Butte in the Northwest Territories, Canada. The Nahanni Butte Dene Band is a small First Nations community in Nahanni Butte who retain traditional and cultural ties to the land and rely on healthy fish and wildlife populations for subsistence harvesting purposes. The mine and winter access road are within the traditional territory of the Nahanni Butte Dene Band. Both the mine and winter road were originally constructed in the early 1980s but the mine went bankrupt before construction was complete and has never operated. The winter access road was abandoned at the same time and is no longer passable. The route is now inside a national Park.

In 2009, owners of the Prairie Creek Mine submitted permit applications to regulatory authorities with the intention of placing the mine into production. Due to the passage of time and changes in legislation in the NWT, a new environmental assessment of the partially constructed mine site and abandoned access road was required. Accordingly, the Review Board began the environmental assessment of the Prairie Creek Mine. The scope of development for the assessment included both the mine and use of the existing winter access road. The Review Board instructed the developers of the Prairie Creek Mine to consider and incorporate traditional knowledge during preparation of a Developer's Assessment Report.

### **TK in baseline information, project design and impact prediction**

Unlike the other two case studies presented here, this environmental assessment is ongoing at the time of writing (April 2011). Hearings and decision making have not occurred, so the role of traditional knowledge (TK) in these steps, though expected to be important, cannot be empirically evaluated. This case study therefore focuses on a TK study by the Nahanni Butte Dene Band in the early stages of the EIA. It examines the gathering of TK, the resulting recommendations and its incorporation into project design.

### **TK information gathering**

The Nahanni Butte Dene Band commissioned a TK Study due to the possibility of renewed industrial activity along the access road and plans for mine re-opening. The purpose of the TK Study was to provide the Nahanni Butte Dene Band with a description of ecological, cultural and traditional values and activities in their traditional territory that may be adversely impacted by the proposed mine and winter access road. The Study would also identify recommendations to address those impacts.

During initial community engagement with the Nahanni Butte Dene Band, the mine developer requested a copy of the TK Study to determine whether its findings could be incorporated into design of their project. A confidentiality agreement was signed between the mine developer and the Nahanni Butte Dene Band in order to protect sensitive TK information from being made public and possibly misused.

Traditional knowledge from the Study determined that important traditional use areas exist along portions of the winter access route and that archaeological artefacts may be present. In addition, wildlife overwintering areas and mineral licks were found to exist along the access route and might be disturbed during annual winter access construction and operation activities.

The existing winter route is abandoned and has not been used for 3 decades. It is presently not passable due to re-vegetation and numerous stream crossings. The TK Study noted concern among community members that opening up the access route once again might attract hunters from outside the Nahanni Butte Dene Band traditional territory. This could result in over-harvesting of wildlife in an area that currently experiences minimal hunting pressure.

### **TK Study recommendations**

Based on traditional knowledge information gathered during the TK Study, the following recommendations were made should the existing winter access road re-open for mining use:

- Re-alignment of portions of the winter access road to avoid sensitive wetland areas and important wildlife habitat;
- Move start of the winter road closer to the community of Nahanni Butte to allow for monitoring of road and use by hunters from outside the traditional territory;
- Conduct an archaeological assessment along the existing route and proposed re-alignment sections with an Nahanni Butte Dene Band elder and interpreter;
- Use traditional knowledge approaches to monitoring the access route during annual construction and operation.

### **Incorporating the TK Study into project design**

The developers of the Prairie Creek Mine held community meetings in Nahanni Butte during the early phases of the EA. Traditional knowledge was gathered by the developer from these community meetings in addition to the TK Study prepared by the Nahanni Butte Dene Band. The information obtained by the developer was able to influence the project in a positive way because it was collected early in the project design phase. The access route re-alignments recommended by the Nahanni Butte Dene Band were incorporated into the project design by the developer. The Developer's Assessment Report submitted to the Review Board for environmental assessment included the re-routing of the winter access road (see map).

### **Conclusions from the Prairie Creek Mine Access Road Case Study**

A TK Study was commissioned by the Nahanni Butte Dene Band in anticipation of the proposed re-opening of an old winter access road and development of the Prairie Creek Mine. Traditional knowledge information was collected by the Nahanni Butte Dene Band and shared with the developer of the proposed mine. Through early community engagement, the developer was able

to integrate the TK into project design and modify the winter access road to the Prairie Creek Mine. The TK Study provided recommendations that resulted in the proposed re-alignment of the winter road and relocation of the start of the road. These project design modifications are good examples of how traditional knowledge informed an environmental assessment early during project design, how TK addressed the concerns of a First Nation community and resulted in a better project.

## Conclusions

### **TK has much to offer EIA throughout the EIA process**

In our experience, many developers enter the EIA process expecting TK to be limited to traditional *ecological* knowledge, which is largely relevant to establishing baseline conditions. We believe this does a disservice to the potential contribution of TK to EIA. These examples show the value of TK (and its component TEK) in informing baseline conditions, because the TK studies all resulted in changes to the projects. However, TK has many other uses in EIA, such as in predicting impacts (such as evaluating the responses of wildlife to particular disturbances) and in significance determinations (by providing a value set that deals with the acceptability of different impacts). The case studies show that there are real benefits to using TK throughout the EA process.

### **There are various mechanisms for TK to enter the EIA process**

In these case studies, traditional knowledge found its way into decision making in several different ways, by:

1. direct communication between traditional knowledge holders and decision makers, for example during hearings;
2. formal traditional knowledge studies; and,
3. communication between traditional knowledge holders and other stakeholders, such as those participating in the EIA on behalf of communities

### **Using TK in EIA is challenging but worth the effort**

Despite its co-management nature, the Review Board essentially follows a process founded in western scientific and legal tradition. A fundamental part of its fair, open, and transparent process is to subject evidence to critical examination, such as cross examination in hearings. Aboriginal tradition, on the other hand, holds that it is disrespectful and culturally inappropriate to critically question elders in a public forum. Unlike scientists or government experts, TK holders' credentials cannot easily be validated by people from another culture. Elders often convey their knowledge not only in their own language but through implicit conclusions described by story telling (Christensen *et al*, 2007). Non-Aboriginal members of the Review Board, and others, thus received TK only as second hand translation and in a way that makes it difficult for them to easily recognize the pertinent points.

Traditional knowledge is generally delivered in a holistic way, not compartmentalized. For Elders it is often inconceivable to talk about one specific development or one specific type of animal only. This can be a poor fit with EIAs, which organize issues and often hearings along specific subject lines. Other challenges in using TK in EIA include objectivity issues, difficulties

in establishing credibility of TK holders, difficulties in dealing with conflicting claims, and others (Ehrlich and O'Neil, 2004).

### **Co-Management Boards have an advantage in considering TK**

TK can be hard for non-Aboriginal people to understand. It is context-specific: The meaning of TK best relayed in the framework of an Indigenous worldview (Berkes, 1998). Because the decisions were made by a tribunal that was half Aboriginal, there was no cross-cultural barrier to cross. Because of its co-management nature, the Review Board is well positioned to understand testimony based on TK presented directly by TK holders (Christensen *et al*, 2007). In making its significance determinations, it has diverse sets of values, based on the diverse worldviews of its composition, with which to weigh the predicted impacts. These helped the Review Board consider the TK evidence in a meaningful way.

### **Benefits of TK throughout the EIA process are worth the challenges**

Considering the case studies, we conclude that even with these challenges, it is well worth including TK in various stages throughout EIAs.

#### **In these case studies, TK led to:**

- **Referral of contentious projects to EIA**
- **New baseline information from original TK studies**
- **Project design changes, such as pipeline and road re-alignment and changed access**
- **Improved prediction of impacts from a better understanding of the local sensitivities**
- **Better understanding of what is important to potentially affected communities**
- **Improved evidence at public hearings**
- **A wider range of relevant evidence to consider during significance determinations**
- **Measures that better avoid significant impacts**

The case studies thus demonstrate the clear influence of TK on project design to avoid impacts, and the relevance of TK to so many stages of EIA. These case studies demonstrate that challenges of using TK in EIA are surmountable, and the benefits of using TK in EIA are considerable.

## References

- Andrews, Thomas D. and Susan Buggey. 2008. Authenticity in Aboriginal cultural landscapes. *APT Bulletin: The Journal of Preservation Technology*, **39**(2-3) pp63-71
- Berkes, F. 1998. Nature of traditional ecological knowledge and the Canada-wide experience. *Terra Borealis* 1: 1-3.
- F. Berkes, 1999, *Sacred Ecology: Traditional Ecological Knowledge and Resource Management*, Philadelphia: Taylor & Francis.
- Buggey, Susan, 1999. "An Approach to Aboriginal Cultural Landscapes". Parks Canada, Historical Sites and Monuments Board of Canada agenda paper 1999-10.
- Christensen, V., A. Ehrlich and G. White. 2007. *Involving Canada's Indigenous Peoples in Environmental Assessment: Co-management through the Mackenzie Valley Environmental Impact Review Board*. Proceedings of the 27th Annual Conference, International Association for Impact Assessment; Seoul, Korea
- Crosscurrent Associates Ltd. 2009. *Addendum to the April 2009 Document: Traditional Knowledge Assessment of the Prairie Creek Mine Operation*. Prepared for Nahæá Dehé Dene Band. Nahanni Butte, Northwest Territories.
- Ehrlich, A. and C. O'Neil. 2004. *Challenges in the Use of Aboriginal Knowledge in EIA*. in Proceedings of the 24th Annual Conference, International Association for Impact Assessment; Vancouver, British Columbia
- Ehrlich, A. and S. Sian, 2004. *Cultural Cumulative Impact Assessment in Canada's Far North*, in Proceedings of the 24th Annual Conference, International Association for Impact Assessment; Vancouver, British Columbia