

PINPINAYHAYTOSOWIN [THE WAY WE DO THINGS]: A DEFINITION OF TRADITIONAL ECOLOGICAL KNOWLEDGE (TEK) IN THE CONTEXT OF MINING DEVELOPMENT ON LANDS OF THE ATTAWAPISKAT FIRST NATION AND ITS EFFECTS ON THE DESIGN OF RESEARCH FOR A TEK STUDY

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Abstract / Résumé

Due to the Canadian Environmental Assessment Act's (CEAA) regulation that an Environmental Impact Assessment (EIA) on development on lands of Aboriginal people should include a TEK study, the company exploring ancestral land of the Attawapiskat First Nation offered to finance such study. This paper offers a definition of the term within the Attawapiskat context, establishes why TEK studies are needed, and discusses how a study has to proceed in order to be of advantage for the First Nation.

En raison du règlement de la *Loi canadienne sur l'évaluation environnementale* (LCEE) qui exige que les évaluations environnementales visant les projets d'aménagement des terrains attribués aux peuples autochtones comprennent une étude du savoir écologique traditionnel, une entreprise qui explore les terres ancestrales de la Première Nation Attawapiskat a offert de financer une telle étude. La présente communication présente une explication du savoir écologique traditionnel dans le contexte de la Première Nation, démontre la nécessité d'étudier le savoir écologique traditionnel et propose des modalités de recherche et d'étude qui avantagent les Premières Nations.

Introduction

With the discovery of diamond bearing kimberlites in Northern Ontario, Northern Saskatchewan and in the North-West Territories, isolated communities like Attawapiskat, a Swampy Cree (Omushkegowuk) community on the Ontario James Bay coast, were faced with a sudden interest in and planned *development* of their ancestral lands by mainstream Canadian or foreign companies. As any activities on ancestral lands will affect the lives of the people inhabiting the lands and certainly also the ecosystem, there have to be some processes in place to be followed in order to control this impact, or even to ensure positive *development*. As the development being referred to in this article commences on ancestral lands of a First Nation, one would expect that the First Nation be included in the definition of the processes to be followed. In Canada, these processes seem to be set by the *Canadian Environmental Assessment Act* (CEAA), which defines environmental effects to be regulated (Section 2(1)) as

any change that the project may cause in the environment, including any effects of such change on physical and cultural heritage, on the current use of lands and resources for traditional purposes by Aboriginal persons.... (CEAA 1996:2)

Thus, with the reference to Aboriginal persons, the Canadian Environmental Assessment Act suggests to include *Traditional Ecological Knowledge* (TEK) "as part of its regular planning process" (McGregor 2000:449). This can be interpreted that TEK data be utilized as a basis for *Environmental Impact Assessment* (EIA). Following Pereira's (2000) interpretation of her quotes on LeBlanc and Shillington (1995), an EIA "is a recognized process for integrating environmental factors into development" (Pereira 2000:2). Or, as Sallenave (1994) states, it is "one way of safeguarding the environment from adverse effects of development [and] can be used to predict, evaluate, and monitor the environmental impact of all activities" (1). Depending on the understanding and definition of *Traditional Ecological Knowledge* (TEK), this could be a powerful tool for the Attawapiskat First Nation, as they could define their position in land management. And thus they could ensure their input in the assessment of what the *development* commencing on their ancestral lands means to the community in terms of impact on their life as a whole, which includes culture and traditional economy.

There are problems, however, with the acceptance of TEK data as the appropriate tool for participation in an EIA. The concern that "there is resistance and apprehension among Aboriginal and non-Aboriginal people about acquiring and using TEK in EIAs" (Pereira 2000:1) refers to a problem that is echoed in many papers discussing TEK: the problem

of how to define *traditional ecological knowledge*. The lack of undisputed acceptance of Aboriginal knowledge in the academic world, and, on the other hand, the certainly justified suspicion by the Aboriginal community towards the academic community, which could appropriate Aboriginal knowledge, might lead to the "lack of confidence in TEK's validity as being a viable source of information for EIAs" (Pereira 2000:1).

In the case of the Attawapiskat First Nation, we are, however, faced with the reality that *development* on ancestral land is in full process already. And even though the initiative in the *development* has indeed been taken by the company, which explores the land and plans a diamond mine, the only tool for meaningful participation and input in the planning phase is a TEK study. The company agreed to use TEK data as the basis for impact assessment. The question then is what collecting these data would involve and who actually sets the rules or guidelines for such study. How much actual input the Attawapiskat First Nation has in any environmental assessment on the development on their ancestral lands, and in how far environmental practices of the First Nation are respected, will depend on the act of First Nation members taking ownership and control of the TEK study. That means that the validity of TEK for the First Nation will be dependent on control the First Nation members can exercise in order to ensure actual Aboriginal data and analysis of the study.

This also means that the concept of *Traditional Ecological Knowledge* has to be defined by the community the data are collected in. Based on literature and conversations with elders of the community, we tried a definition, which is presented below. The next paragraph will then discuss the need of TEK studies for the community in terms of self-determination, conservation and sustainability, defining the position of the First Nation, damage assessment, and cultural integrity of the First Nation whose lands are affected by *development*, followed by a look into the Attawapiskat context and a discussion of how the TEK study has to be developed in order to meet the needs of the First Nation. Much of this discussion is based on the proposal the authors have worked out for raising funds for the TEK study project in Attawapiskat (Hookimaw-Witt & Witt 2003).

Defining TEK

To set the stage for the following presentation of the need of a *Traditional Ecological Knowledge* (TEK) study and how processes for researching TEK are to be developed in Attawapiskat, we will define what we understand by the term, trying to capture the community's view of what *Traditional Ecological Knowledge* means for the people who live it. Based

on both the accumulation of knowledge and the use of it, we will try a definition that seems to be logical, considering what the term *traditional* would mean in the context of knowledge by people of First Nations.

To avoid confusion we also have to establish that different sources use different terms to describe what we define as TEK. For example, Grenier (1998) chose the term *Indigenous Knowledge* (IK) but refers to this concept also as *traditional local knowledge* (1) or *traditional ecological knowledge* (2). Similarly, Couture (1991a) and Boissieres (1986) refer to it as *Indigenous knowledge*. All these terms, including *traditional knowledge* or *Aboriginal knowledge* are referring to TEK in the way we have defined it below because of the connection of Indigenous cultures to the land or ecology.

Martha Johnson (1992) defines TEK as "a body of knowledge built up by a group of people through generations of living in close contact with nature", adding that it is "both cumulative and dynamic, building upon the experience of earlier generations and adapting to the new technological and socioeconomic changes of the present" (4).

The Cree-Métis psychologist Joseph Couture (1991a) goes beyond the condition of *knowing*, defining *Indigenous Knowledge* with Boissieres' (1986) words as "the ancient purity and integrity of the ceremonies, the ancient knowledge of humanity" (55). The indication to the ceremonies already points into the direction that the term goes beyond the mainstream understanding of *knowledge*, as it includes *praxis*. We have to caution that the term *ancient* does not indicate that the concept of Indigenous knowledge is stuck in the past. In our understanding, as it is also interpreted by McGregor (2000:443) and Johnson (1992:4), knowledge and the way it is used is additive, meaning that it always adapts to new challenges. Nevertheless, Indigenous knowledge has its basis in the spiritual cultural understanding of the relations among all living beings, which has been observed since time immemorial, the ancient knowledge of humanity as Couture describes it.

The interaction of knowledge and praxis is also reflected in the statement that TEK is "the culturally and spiritually based way in which Indigenous people relate to their ecosystems" (Winona LaDuke 1994:128). Similarly, Grenier (1998) defines Indigenous knowledge as referring to "the traditional, local knowledge..., covering all aspects of life, including management of the natural environment." McGregor (2000) concludes in reference to LaDuke that "TEK is thus more than another accumulation of knowledge; it is a way of relating to creation and all its beings and forces. It is more than knowledge of a relationship; it is the relationship itself" (444).

The inclusion of praxis and knowledge thus being the relationship

to the land, which can be defined as *way of life*, can also be extracted from our elders' discussion on traditional knowledge. Elder Marie Louise Hookimaw elaborates on the appropriate gathering and processing country food as being important for health and survival (Hookimaw-Witt 1998:207). Similarly, elder Raphael Fireman explains to some length how the appropriate application of traditional knowledge still secures survival of the community (Hookimaw-Witt 1998:208-214). And elder John Mattinas chooses the example of gathering medicine plants to interpret the goal of the Omushkegowuk's application of TEK being *sustainability*. He points out that not only do we teach the younger generation about *what* we know about using these plants for healing but also about *how* to use them in a way that they are still there for following generations. When he says that "we also teach deep respect for these treasures" (Hookimaw-Witt 1998:216) he expresses the spiritual dimension of TEK being *relationship* and refers to the goal of sustainability, which, according to a definition by IUCN (1997) is secured "when human conditions and the condition of the ecosystem are satisfactory or improving (31).

The goal of sustainability would also demand responsibility of the individual land user to the land, and this responsibility can be defined within the concept of self-determination. This is reflected in our elders' response to the questions of who has the power of decision on what is to happen on the land. Elder Shano Fireman responded that "the one who lives on the land is the one responsible for it, and that is me" (Hookimaw-Witt 1998:186), and Elder Mary Wabano pointed out that "Kitche Mando (The Great Mystery) gave us the land to use, not to control. But we have to look after it" (Hookimaw-Witt 1998:186/187). And she includes self determination when she says that "Kitche Mando created the land and [s/he] did not say for us to be controlled [by the government]" (Hookimaw-Witt 1998:190). Both elders emphasize the individual's responsibility or role of "empowered guardian" of the land (Western Canadian Protocol 2000:15). The role of empowered guardian refers to the decision making power of the individual land user and thus expresses the traditional decision making process and political structure of Aboriginal societies in regards to land management.

The indication to individual land use also points to the other phenomenon McGregor (2000) refers to: that of multiple knowledges due to individuals having different interpretations (446). Different family groups within the Attawapiskat region have been responsible for different parts of the land. The knowledge on these specified parts of the land was within the family groups who occupied it (map in Hookimaw-Witt 1998:iv).

Expanding on McGregor's (2000) definition of TEK as "the relationship," we therefore chose the Omushkegowuk (Swampy Cree) term of

pinpinayhaytosowin in our title to describe what TEK means to us. The term can be translated as *the way we do things*, as self-determination, which is included in *Way of Life*. The way of life can only be interpreted holistically, which means that all aspects of life (here of the Omushkegowuk) have to be considered.

With paying respect to the elders who guide us in this study project, we therefore came up with the following **definition**:

Traditional Ecological Knowledge is the totality of life of the people, which consists of knowledge (or *laws of nature*) as it was observed and accumulated **and** as it is still applied in order to keep the balance in the relationship to the environment. The application of traditional knowledge is directed towards sustainability of life as a whole and it is defined within the concept of self-determination. TEK is the way of life of the people.

To avoid possible misinterpretations we also want to acknowledge McGregor's (2000) discussion on the origin of the term TEK, which refers to mainstream academic definitions and use (or misuse?) of TEK (McGregor 2000:443-448). There is a danger of misinterpretation when the concept *traditional* is merely used to create an illusion of First Nation input and protection of First Nation interest. This would divert from actual existing land rights First Nations have by the treaty or by pending land claim settlements. Thus McGregor's (2000) caution that TEK is a term created by non-Native academia is justified, and we therefore have to caution to see any definition of TEK as a frame, not as an absolute, and that interpretations will differ depending on the community that is researched and whose TEK data are used for EAs. What that means is that, although the *outsider*, being a possible researcher or the development partner, will utilize the TEK data to satisfy conditions for an EIA, control over application and definition of concept has to remain with the researched people, not the researcher. The implications of defining TEK as *way of life* on the process of researching a TEK among the Attawapiskat First Nation, which was also the basis of the research proposal (Hookimaw-Witt & Witt 2003), resulted in the suggested structure of the study, which we will describe below as *rules of engagement*. But first we want to establish why the TEK study is needed.

The Need for a TEK Study

In terms of assessment of damage to the environment and economic loss due to development, for a First Nation affected by exploration on ancestral/treaty lands the appropriate definition will mean that the closer TEK is defined on the basis of the community's understanding of envi-

ronmental impacts of development, the more accurate actual losses can be calculated. The assessment of probable damage by *development* on ancestral land would be the basis for calculating compensation for loss by people who used the land before this *development* started, and most probably continue to use the land after the *death* of the diamond mine. If TEK is actually defined as way of life and knowledge of the affected community, the goal of managing *development* will be that the damage is kept within a range that the land can be used again. In the meetings, of the TEK working group, which one of the authors, Jackie, is part of, the two elders always refer to how land is still used, expressing their emotional connection to it. (Meetings of working group and phone conferences throughout September and November 2002).

And here is the point where TEK is important for the position of an Aboriginal partner in land *development*, as the goal development is discussed in might refer to different concepts, that of economic gains versus sustainability.

As pointed out in our definition, TEK includes responsibility to and thus managing of the land. In his paper on TEK, Dudgeon (2000) identifies two different types of approaches to "management of common property resources", which he defines as the one being consistent with "TEK of the Aboriginal peoples of Canada and a minority tradition within the scientific community, and the other [being] consistent with dominant Western techno-economic practices and with traditional understanding of science" (Dudgeon 2000:1). The former would lead "to sustainable management of the commons", while "the techno-economic view has tended towards a short term, profit oriented approach, which often erodes the resource base over a relatively short period of time" (Dudgeon 2000:1).

These are the two opposite positions, which roughly define the conflict arising when the interests of the *two worlds* meet on the field of *development* on Aboriginal lands. In regards to possible attempts to interpret those opposite positions as being compatible, we want to make aware that

the Elders say the elements of the mainstream and traditional cultures are not transferable. The wage economy and social assistance stand in contradiction to the traditional use of the land and the role of the individual as an empowered guardian. (Western Canadian Protocol 2000:15)

In other words, one has to pick one of the positions, and ours will be that of sustainable management of the commons, as this is consistent with the Omushkegowuk worldview. The conflict between the two positions shows in the Attawapiskat project in the concern the vice president of the company in Canada raised with Environment Canada when

he asked: "what when Traditional Knowledge contradicts accepted scientific findings?" (Fowler 2000). The anticipated contradictions, of course, refer to the company's approach towards short term profits, their profits that is, while the community or band, which we define according to *Corbiere vs Canada* (1993) as the entire band membership including those living off-reserve, not only their leaders, would naturally desire an approach for sustainability of land and resources. Fowler's (2000) statement also allows the conclusion that the initiation of a TEK study was based on the hidden agenda to use TEK data not for protection of the Aboriginal position but "largely for their [the company's] future profits" (Grenier 1998:10). Being members of the community, we base our following statements why a TEK study is needed on the position Dudgeon (2000) describes as sustainable management of the commons.

The first statement, referring to self-determination of First Nations, is that TEK would be the basis for culturally appropriate decision making processes concerning land management. Considering that the development we are referring to proceeds on land that has been used by the people living on it for thousands of years, the people should then be the ones to determine how development has to proceed on their lands, as they have done according to the responsibilities they were given by Kitche Mando. The logical choice of accessing information about how land and people are affected by *development* would be through the knowledge of the people as they are the ones affected and the ones who know the land. The responsibility for the land, and knowledge of how to live with the land, how to sustain it, is with the people or more specifically with our elders. And that is where the data for a TEK study have to be researched. To ensure self-determination, the people affected by *development* have to be the ones assessing the impacts. Then TEK, used as position of the First Nation in questions of land use, ensures self-determination.

The second statement is that conservation and sustainability is a concern globally and that TEK data would be needed as a starting point to change the habit of destroying our own habitat for the sake of short-term economic gain. In this context, Couture (1991b) refers to the global "need to survive to which Native North Americans have something significant to contribute" (203). Referring to sustainability, Higgins (1998) similarly makes aware that "the Brandtland Report of the WCED (1987) called for official recognition and protection of Indigenous peoples and their knowledge because of their ability to contribute to local, regional, and global sustainability" (Higgins 1998:323). Contrary to the company's concerns that TEK might contradict scientific findings, it would rather complement science because, as Grenier (1998) points out, "western

techno-scientific approaches are an insufficient response to today's complex web of social, economic and environmental challenges," and "traditional systems usually examine problems in their entity" (8). In this context we need to collect data on TEK in order to find ways to stop the destruction of our own habitat, which would threaten our lives altogether.

Our **third statement** would be that TEK data have to be collected and recorded in order to preserve culture and knowledge of the First Nation and to state its validity within the western academic context. The limitations of EIAs have to be seen in the fact that on the one hand "the impacts of developments affect Aboriginal communities" (Sallenave 1994:3), and on the other hand the EIAs are based within the different cultural context of mainstream society. Sallenave (1994) continues that there is "a lack of adequate ecological baseline data and the lack of an adequate framework or method to link ecological and social components of the environment" (3), which is also echoed by Grenier (1998) who sees the value of researching TEK as providing environmental baseline data (10). Referring to the baseline data as TEK we want to point to the necessity of EIAs to be assessed within the understanding of the people who are affected by the development. With the indication to ecological and social components of the environment, Sallenave (1994) refers to a holistic assessment of ecological damage done by *development*, which would go beyond assessing losses to the traditional economy of the community affected by *development* commencing on its lands and would include effects on social life (including health), economic life, political structure and spirituality of the community. The goal of utilizing TEK data in EIAs would then be to protect the Aboriginal community's way of life. McGregor (2000) establishes that "most environmental practitioners agree that it is important to gather and document TEK before the knowledge disappears, as the number of the knowledge possessors (Elders and resource users) is dwindling" (446). Grenier (1998), McGregor (2000) and Sallenave (1994) make aware of the lack of recorded ecological knowledge, which would ask for such studies to be done. If Aboriginal land is affected by development, Aboriginal Knowledge on the impacts of such developments will have to be the basis for assessing such impacts. Sallenave (1994) therefore directly refers to TEK as tool for such assessments when concluding that "Aboriginal Ecological Knowledge should be integrated formally into the process [of an EIA], and Aboriginal peoples should be given greater decision making powers concerning EIA research and policy" (5).

Our **fourth statement** is that without TEK as the basis for assessing the damage *development* causes on the land, there can never be reasonable compensation, as the actual impact *development* has on the

life of the community is ignored. What we are referring to are "net gain and loss calculations" (Gibson 2002) which are the basis for compensation assessments. First we have to know what is lost in order to assess how to compensate for it. The danger is that any payment the company is making towards the community is seen as benefit to community development, additional funds if you will, when in reality the community is losing its economic basis. Such compensation practices are happening in Attawapiskat already by putting the amount of \$200,000 towards the community arena as compensation for losses in gathering food, while the people actually affected by these losses, the hunters, are ignored (Attawapiskat 2002). Although the funding of "new community recreational facilities" can be counted as "compensating for risks to traditional hunting and trapping (substitution in kind)" (Gibson 2002), the payments will have to be accounted towards a figure representing the calculation of loss. That also means that the actual *monetary value* of the traditional economy has to be calculated first, based on how TEK is still practiced, before any compensation, which makes up for loss of those values, can be assessed. And this has not been done yet. The basis for our statement is that a large portion of the population no matter if they are counted as *traditional* or *modern* are still engaged in the annual goose hunts, many women are still producing crafts, and almost everybody in Attawapiskat uses wood as fuel for heating their homes. The basis for all these activities and the commodities resulting from them is the land and the traditional use of it. A mere study of hunting activities in the very small area of the actual diamond exploration, as it was done by Wilkinson and Associates (2000), cannot grasp the impact this exploration has on the wider environment, also considering the pollutants from blasting getting into the river etc. Also, among the very small number of hunters (31 out of 4 families) interviewed in Wilkinson's (2000) survey, only one family received compensation. A TEK study is thus needed as the basis for loss calculations in order to be able to assess if payments by the company will actually compensate for possible losses due to development.

Our **fifth statement** is that without TEK data as the local basis of assessment of community life and economy there is the danger of cultural disruptions or even loss of culture due to the uneven power relations between the First Nation and the company. Oxfam America (2002) summarizes this phenomenon as follows:

The new company not only is immensely more powerful but also employs resources and criteria that disrupt and often challenge traditional power structures and ways of making decisions. Local authorities often become humble **suppli-**

cants of services and favours from the company, and thus the cultures and traditions they symbolize become diminished in their own eyes and those of their community members. This represents a cultural aggression—albeit unintended—by the company and often means that once the mine's life term is over, the community may be culturally and politically unstable. (Oxfam America 2002)

There are indications of these processes, based solely on the expectations of *benefits* the company offers, happening in Attawapiskat. The ignoring of hunters, the actual land users, in compensation, as discussed in the previous statement, is one example. Another example is the signing of an agreement for a winter project by the Attawapiskat First Nation leadership without the in these cases necessary sufficient consultation with the band-membership. The Council with their lawyer presented the agreement to merely 30 band-members. Traditionally, decisions concerning land use are made by the whole community. Although the Council is divided on this issue, the councilor responsible for economic development is “not interested in a TEK study because the lawyer said we don't need it” (Hookimaw-Witt 2003a). In all cases, ignoring the actual land users, the “empowered guardians” (Western Canadian Protocol 2000:15), the lack of real community consultation, and in the disinterest in a TEK study by the representative of the leadership, common decision making processes in the First Nation are ignored. Traditionally, elders are our advisors, and decisions concerning the land are made by all members, not just by leaders who are *advised* by the partner in development, the company that makes the profits. The processes of a breakdown of traditional political structure and power relations, described by Oxfam America (2002), has started already just with the presence of a company which can influence decisions by the power of the money they can put into the community. A TEK study is needed for defining the position of the community, which the leaders can base their decisions on.

Rules of Engagement – How the Study Should Proceed

Beside the fact that a TEK study was initiated because such study is needed for an Environmental Impact Assessment (EIA), the community is a good place to do such study in, due to the community's isolated location and the still wide spread use of TEK. Thus a study in this community promises to produce *authentic* data. It is also worth mentioning that this TEK study will be the first one in the Omushkegowuk region.

Attawapiskat was entered into official treaty with Canada and the Province of Ontario relatively late, in 1930 (Treaty #9 adhesion), and the

majority of the First Nation members moved to the community as late as the mid-1960's (Witt 1998:247). Thus, traditional structures, thinking and interpretation of life could be salvaged into the present despite the alien political structure that was introduced and forced on the Band by the Indian Act, and despite the *alien* (mainstream) education system the children now receive their formal education in. A few of the elders still lead a traditional life on the land, moving into the community only over Christmas season (Witt 1998:249), and some families, although having their home base in the community, are still using the land extensively as their economic and social basis. The vast majority of community members are involved in the yearly goose hunts in fall and spring (Witt 1998:6). Therefore there is still an awareness of traditional way of life among most of the Attawapiskat First Nation members. This means that traditional knowledge can be researched on a wide basis, but it also has to be researched according to the definitions of the people of the First Nation rather than definitions by the academic community.

Based on the awareness that the people had to find their own definitions in case of research proceeding in their community, we started to organize the *local voice* since the beginning of exploration on Attawapiskat treaty land in 1996. In order to secure protection of local knowledge and local interpretation and analysis of how TEK is actually applied, this eventually led to the following suggestions how this TEK study has to be set up in Attawapiskat.

Control Over the Study - The Local Working Group

As we mentioned already, it was the company, which, also offering to pay for it, suggested a TEK study in order to satisfy the conditions for the necessary Environmental Impact Study. To ensure the appropriate input of the community, a local TEK working group was then formed by Chief and Council. This group consists of four local people being two elders, elder Annabella Iahail and elder Raphael Fireman, Jackie Hookimaw-Witt as a research coordinator and researcher, and Jason Hookimaw, who represents the community as environmental monitor. Frictions with the company arose in the question of control over design and procedures of the study. The local working group understood their purpose as ensuring community control, and the attempt of the representative of the firm hired by the company for designing and executing the study to push through their own design eventually failed due to the resistance of the local working group. The rationale of this resistance was, of course, that as it is local knowledge that is to be researched, our local elders are to be the ones who have to design it and advise in the interpretation of meaning of the data collected. The demand by the com-

pany that "this entire area needs to be revisited and *rationalized*" (our emphasis) (Fowler 2000) is out of place, as the *rationalization needed* certainly refers to *western* knowledge and understanding and would thus diffuse the meanings of the data to be researched.

To ensure authenticity of the data, to secure the basis for self-determination in terms of decision making on land management on the First Nation land base, and to ensure a truly traditional, Omushkegowuk result, the community has to be involved in every aspect of the research. The direction for the research, which includes designing of questions and identifying focal points, has to come from elders of the community, who are identified as the elders in the working group. To make sure that local traditional definitions are followed all the time, the elders (male and female) have to be a permanent part of the research process and will also give advice in the analysis of the data. The elders are instrumental in designing research and research questions and identifying the focal points of the research.

Language

Attawapiskat is an Omushkegowuk community with almost 100% of the Aboriginal population speaking Cree (n-dialect) as their first language (Witt 1998). Many of the elders either speak only Cree and other Aboriginal languages or have only a very fragmented understanding of the English language. Naturally, the language of the research therefore has to be Cree, as many respondents would not or only partly understand the researcher if English was used. Yet, this should not be the only reason for using the Cree language in this project. Although we will look for and analyze commonalties between science and TEK, the mere recording of traditional knowledge will be the first step, and this recording will show the difference. Commonalties will have to be interpreted from the *traditional* (Cree) understanding to the *scientific* understanding not the other way around, as this project should show the Attawapiskat Cree perception. For getting accurate results, Aboriginal language has to be used because, as Edward Chamberlin (2000) discusses the accepted fact that language defines what is to be human, consequently, "while language in the abstract may be what defines us as human, languages in practice—different languages in different practices—determines these differences" (133). What that means in explanation of the Omushkegowuk's connectedness to the land is that "no English words are good enough to give a sense of the links between an Aboriginal group and its homeland" as Chamberlin (2000:136) quotes William Stanner (1969). This means, of course, that all names of geographic places and spiritual sites have to be recorded and mapped in the Ab-

original language. For the English version of the completed final report, a glossary then has to be added with a translation of the meaning of these terms.

All interviews and their recordings are in Cree and then have to be subscribed to both Cree (syllabics) and English for analysis and written records. The translation into English will go beyond literally translating concepts as many of the Aboriginal terms will have to be interpreted for their meanings. For legibility by non-speakers of Cree, the original terms used in the English version will be written in Roman orthography.

Ethical Considerations

For the purpose of securing funding for any research project, the project has to satisfy the necessary ethical review. Ethical reviews are usually supervised by the appropriate committees within universities, which have set guidelines of research practices, consent forms, archives etc. At the same time we want to point out, however, that such committees lack the authority to make such decisions in regards to people deriving from cultures different from those the committees have their bases in. Researching in an Omushkegowuk community with one of the researchers originating from that community, we, of course, have to follow the local, Cree protocol for interaction among people, which is not yet recorded in any written form, and largely unknown and/or ignored by such university committees. A critical issue are consent forms and how to secure consent from elders and other informers within the community. Consent, as we interpret it, is a process that is not sufficiently adhered to by the signature on a consent form. Rather, as described in AIATSIS' (2000) *Principles of Ethical Research*, "research projects should be staged to allow continuing opportunities for consideration of the research by the community" (AIATSIS 2000:2). These continuing opportunities are created by the process we suggested for the research in Attawapiskat, which is the continuing involvement of an elders group in design and execution of research, and elders' participation in the analysis of the data collected. Another issue connected to ensuring consent is the interpretation of how intellectual and cultural property rights are to be protected, respected and preserved. Protection of intellectual and cultural property rights does not necessarily mean that Aboriginal knowledge is not shared, as often interpreted by scholars. In the context of researching in Aboriginal communities it rather means that those who shared the knowledge have to be identified and properly quoted. As AIATSIS (2000) puts it, "it is a fundamental principle of research to acknowledge the sources of information and those who have contributed to the research" (3). We refer to former research experience in the community (Hookimaw-

Witt 1998 and Witt 1998), where the informers and elders asked to be identified whenever we quoted the research data, rather than just being generally acknowledged somewhere in the appendix. This stands in contrast to the usual requirement by ethical review committees at universities, to code quotes on data collected in order to protect the informant. Any guidelines set by university committees or ethics committees of other funders will have to be interpreted by researchers in Native communities in a way that they satisfy ethical considerations Native to community and culture researched. The practice of identifying the individuals and involving them in the whole research project, including the analysis, is consistent with the *Geneva Seminar on the Draft Principles and Guidelines for the Protection of the Heritage of Indigenous People* (Daes 2000), where it was pointed out that "Indigenous peoples were the 'source' of culture, not just the carriers" (397). That is why we suggested an elders' group and its leading role in design of the research and analysis of data. For the research process and identification of research subjects this means that the researched will advise the researcher about what they consider important data to be included as *traditional ecological knowledge*. The term *heritage* is defined according to *The 2000 Revisions of the United Nations Draft Principles and Guidelines* (Wiessner & Battiste, 2000) which "allows for the inclusion of things and ideas as disparate and subject to otherwise differential legal regimes as, *inter alia*, songs, dances, works of art, ceremonies, scientific knowledge, knowledge about the use of flora and fauna, human remains, and sacred sites" (384). This explains the structure of the research we are suggesting, considering all aspects of life, not only economy. By this, our definition of *Traditional Ecological Knowledge* is linked to the definition of Aboriginal people being *the source* (Daes 2000:397) of their culture and naturally also of the knowledge researched. Thus, when the knowledge to be researched should represent the actual *tradition*, it has to be researched and analyzed from the point of view of this *source*. Control over research and analysis has to stay within the people researched in order to produce recordings of actually *traditional* knowledge, and to respect feelings and protocol on how knowledge, particularly spiritual knowledge, should be recorded.

We acknowledge that studies on how to proceed with research in Aboriginal communities have been done already (e.g. Dene Cultural Institute 1991), and much of the literature refers to those studies. Yet, we also want to establish that ethical details on how research has to proceed still have to be worked out with the community, and that protocols already worked out are to be interpreted as providing general directions to be followed, as

a set of standards so that [Indigenous] people might be informed of research, its benefits and costs, be treated fairly and ethically in their participation in any research, and have an opportunity to benefit and gain from any research conducted among them. (Mi'kmaq College Institute, 1999)

Our following suggestion of how TEK research has to be set up and proceed in Attawapiskat therefore refers to the needs of the community to keep their self-determination, which is based on protection of traditional knowledge and way of life. We are referring to the Mi'cmaq Ethics Watch, establishing that "each community shall have knowledge and control over their own community knowledge and shall negotiate locally respecting levels of authority" (Mi'kmaq College Institute, 1999).

Despite the necessity to include TEK in an EIA, the study, like any research in a Native community, should also lead to positive community development. In this case we try to establish guidelines for the TEK study of the Attawapiskat First Nation in the context of negotiating a position for development on ancestral lands. Hence we chose the title of *Pinpinhaytosowin – the way we do things*.

Probably due to the misinterpretation of Aboriginal knowledge as being *primitive* (Posey 2000:1), control over design and execution of the study was claimed by the *developers* rather than by the ones whose land and resources are being *developed*. The underlying assumption is, as discussed by Posey (2000), that Indigenous cultures and resources have to subjugate "to the presumed more advanced and developed national cultures" (2), which are here represented by Canada (the government) and South Africa (the company).

To ensure positive community development, control has to be taken by the community. The positive community development would be that, with the use of TEK data, the Attawapiskat First Nation can define their position in the development proceeding on their land, resulting in the community's involvement in managing their own resources on their ancestral lands. On the basis of the analyzed data, the often used term of *environmental stewardship* can then be defined from an Aboriginal (here Omushkegowuk) point of view. This would be the basis of further economic and social development of the community and ensure meaningful participation in any future *development* concerning the First Nation's ancestral lands. Also, such data base has the effect that TEK will eventually be recognized as valuable contribution to knowledge on the effects changes in the natural environment will have on human life.

Some scientists have already acknowledged TEK in projects that concern Aboriginal lands. For example, Arctic ecologist Pruitt has been using Inuit, Athapaskan, Lappish and Tungus terms to make his descrip-

tions of the phenomena he researched more precise (Berkes 1993:2). And the earlier mentioned World Commission on Environment and Development (WCED 1987) stated that

tribal and Indigenous peoples' lifestyles can offer modern societies many lessons in the management of resources in complex forest, mountain and dry land ecosystem. (WCED 1987:12)

For Attawapiskat this means that through the database to be developed, the First Nation cannot only define their own position in land management but can also contribute to environmental knowledge, here on wetland management. As it should be researched, recorded, analyzed and catalogued following both local protocol and regular academic procedures, traditional knowledge will then get the recognition and respect it deserves.

Research Methods To Be Used

The methods to be used a study concerning First Nations are based within the concept of *participatory action research* as defined by Park, Brydon-Miller, Hall & Jackson (1993). This means, as Hall summarizes it, that participatory research is "fundamentally about the right to speak" (xvii), or as Park puts it "a self-conscious way of empowering people to take effective action toward improving their lives" (1) with the researcher "participating in the struggle of the people" (9).

The *struggle of the people* would here be interpreted as getting the actual traditional knowledge recorded rather than interpreting what *mainstream* assumes traditional knowledge is.

It is unfortunate that there is a question at all of who controls research of *traditional knowledge*. The interpretation by Fowler (2000) shows, however, that in terms of researching *the other*, a colonial attitude has not disappeared yet. This attitude is described by the Mohawk scholar Marlene Brant Castellano (1986) as Native people being "conditioned to believe that they were backward and to accept the judgment of administrators, teachers, doctors, police etc." (52), which here means the judgment of the non-Native establishment the diamond company belongs to. What we want to find out, however, are "the ways the people [themselves] make sense out of their lives" (Bogdan & Biklen 1992:32).

Interview schedules have to be worked out in close cooperation with the local working group. An important factor in terms of interpreting cultural meanings is also that both researchers have done research in the community already (Hookimaw-Witt 1998 and Witt 1994 and 1998), and have knowledge of the local culture, and that one of them (Jackie) is a member of the community by birth, has grown up there and speaks the

language. Thus, concepts that are deemed important by both researchers and participants can be discussed and clarified while the interview schedules are designed.

The main research tool is the *interview schedule* with open-ended questions rather than a more structured questionnaire. This is defined as "semi-structured interviews" (Bryman & Burgess 1994:90), which give the respondents "an opportunity to develop their answers outside a structured format" (Burgess 1984:102) or, as we would define it, within their own cultural understanding. This makes the interview appear more like a conversation, a culturally appropriate research tool that was tested in the community already (Hookimaw-Witt 1998 and Witt 1994 and 1998).

Data collection tools will mainly be tapes, audio and video (or DVD), complemented by notes, and technology like Geographic Positioning system (GPS) for the land use study. If in some cases the elder interviewed insists on the traditional method (as in Hookimaw-Witt 1998) the data collector will have to memorize the conversation, as is usual in oral traditions, and has to transcribe it immediately after the conversation.

Data collectors have to speak the local language and have an understanding of both traditional life and academic methods. Notes and tapes are to be transcribed and catalogued in both languages, Cree and English. All notes and tapes have to be archived. The tapes can be used for future projects like curriculum and course developments, possibly being processed into teaching tools.

Analysis

In order to respect the way things are done in this Native community, the methods of analyzing the data must be positioned within the structures of *qualitative research* with a form of descriptive analysis as described by Bogdan & Biklen (1992:31-32). The analysis includes the search for the reasons why people answer the questions in the way they do. It will also produce data that show more depth (Bryman & Burgess 1994:91) than purely quantitative data and it allows for cultural interpretations. This is necessary for the understanding of the results by people who are based in a different cultural environment, which is particularly important for the English version of the report. Due to the nature of the interview schedules, the data (transcripts and field notes) will be grouped and indexed in descriptive categories (Bryman & Burgess 1994:91) in order to make the analysis workable. These categories can then be used for the final report. In order to represent the meanings of the recorded data correctly, the elders group will give advice on the interpretation of the data.

Geographical Areas To Be Researched

In order to represent the Traditional Knowledge of the community, eventually all the areas identified as *Attawapiskat Traditional Land Use* on the map by Keir Consultants Inc. (1994) have to be researched, not only the small part where the mine is established. The whole ecosystem is affected by the mining activities and all lands represent the traditional family lands of the Attawapiskat First Nation and thus represent the basis of the entire Traditional Ecological Knowledge of the First Nation. Different families have traditionally used different parts of the land.

Research Subjects

The study of traditional ecological knowledge has to be understood holistically. When Aboriginal environmental stewardship is based on a harmonic relationship with the environment, and any future development has to be based on that relationship (Gwich'in 2000:1), this relationship has to be understood first from all aspects of life.

Due to the special connection of land and people, and the impact this connection has on the life of the Omushkegowuk, data to be collected have to include all realms of life (social, economical, political, and spiritual). The relationship to the land is central to Omushkegowuk culture, and in order to understand any form of traditional knowledge this relationship has to be understood. Gregory Cajete (1999) explains that Aboriginal peoples transmit this relationship in every aspect of their lives. What he means by that can be understood by his interpretation of the Natives' sense of *place*, which is not only a geographical, physical place but also a spiritual place, and a place of being and understanding (Cajete 1999:4). The land is thus more than an economic basis. It defines life as a whole and is the basis for social, economic, political and spiritual development of the First Nation. Any *development* of the land therefore impacts the community as a whole and the impact of the development can only be measured by a holistic view into the matter. Also, meaningful participation of the First Nation in any development project will always refer to sustaining *the whole* rather than concentrating on a mere possible, short lived economic gain.

At this place we will include an issue which is discussed in most recent papers on research, that of **gender**, or "making research gender sensitive" (Grenier 1998:37). Researching the entity of Traditional Ecological Knowledge of course includes women as research objects and gender roles as research subjects. Our rationale is based on the Omushkegowuk traditional world view that explains the role of men and women as being complementary. This perspective goes beyond "recog-

nizing gender roles to represent different needs of men and women" (Grenier 1998:40), which will particularly be understood once we look into the economic realm of life. Leaving out women's perspectives and roles in Aboriginal life would not only lead to incomplete data concerning the needs of women but also to confusing data concerning needs and their satisfaction within the whole community. This is so because a complete process in any realm of life can only be reflected when both parts of the process, the female and the male, are considered.

(a) The emotional/social realm

The land and the observation of life on it have always defined social structure, relations, and behaviour of the people who live on it. Part of the data on Traditional Ecological Knowledge to be researched therefore has to explain the social aspect of land use, which goes beyond a mere *Social Impact Study* that the company meanwhile initiated without the input of the elders in the working group. This includes questions on health (medicines, the development of diabetes and similar *new* illnesses, mapping of medical plants Native to the geographical area), recreation (and mental health), social structure, the purpose of division of labour and gender roles on the land, education, (with camps and land use as educational means to socialize children), child rearing, awareness and understanding of social organization (in reference to what is observed in the environment). Any losses due to *development* of ancestral land will have to also consider losses, and expenses who make up for those losses, in the social realm.

(b) The physical/economic realm

Although the economic sector is usually taken as the mere basis for compensation of possible loss due to *development*, it also is usually not represented from an Aboriginal point of view. In order to understand Aboriginal sustainable economy, all aspects of it, the purpose of economic activity with division of labour, and the role both genders play have to be understood. That means that a definition of *economy* cannot be based on mainstream understanding of it with definitions of *private* and *public* sectors, which usually leave out the women's contribution, as is discussed by Ouellette (2002:15-27). Also, understanding the Aboriginal worldview one has to consider that food is not the only commodity harvested from the land. The study for the purpose of calculating compensation (Wilkinson 2000) included neither women nor all actual land users, nor did it survey any other commodities than food. Furthermore, the only food identified in that survey was meat and fish.

As women's and men's work in this sector complement each other and are equally important, gender roles and their meaning for economy and sustainability will have to be researched and analyzed, as well as all possible commodities that can be harvested from the land. The exclusion of the women's part in economic activities does not only give a wrong picture but would be nonsensical because of the complementary nature of women's and men's work. For example, when losses in food assets are calculated, one has to consider that geese, fish and mammals do not represent the only part of the diet. Plants, roots and fruit (berries) are also harvested, as well as small mammals (like rabbits), and birds that are snared (like grouse). This contribution to the diet is traditionally women's work. Furthermore, animals can only be identified as food after they were processed into food, which, of course, adds value to the product by the work that went into it. Women are the ones processing the kill into food and other necessities of life. The gathering and use of medicine plants, usually also within the women's responsibility, can state an enormous economic factor considering the price for the pharmaceutical products that now replace them. Parts of the animals are still processed into tools (e.g. bones for scrapers), clothing (hides into dresses, mittens, moccasins) and other crafts, blankets (rabbit skin, goose downs) and other commodities. Particularly the crafts, done by women, represent enormous economic value that was not considered by Wilkinson (2000). Another economic factor that was left out by the last study was that wood is harvested for fuel (firewood), making tools (e.g. handles for axes, snowshoes), and crafts (e.g. tamaracks). A TEK study therefore looks into gender roles and the resulting division of labour as well as all aspects of economic land use in order to grasp the entity of economic activity and value.

(c) The mental/political realm

As it was deduced from observation of nature, the traditional political organization of the First Nation is part of traditional ecological knowledge and has to be researched in a TEK study. We mentioned the individual's role as empowered guardian of the land already. As Attawapiskat women and men work together on the land within the family, it is particularly important to understand the women's role in political decision making in traditional society, which, of course, is still detectable in so-called *modern* society but is neither understood nor is it considered in most political activities concerning *modern* First Nations. Although it is true that "economic activities..., such as hunting, fell primarily into the male sphere of decision making" (Archibald & Crnkovich 1999:10), hunting is by far not the only nor is it the predominant of the

“economic activities related to the lands and resources” (ibid). The resulting conclusion that therefore men are the ones to have knowledge of and responsibility over land and resources and are the sole decision makers in this area may have led to an incomplete understanding resulting in the wrong definition of traditional knowledge being unscientific. The actual *science* in traditional land management cannot be grasped on the basis of one activity alone, like hunting, no matter what society is looked into. The term *egalitarian society*, as discussed by Stasilius & Jappan (1995:102) has to be understood as the previously mentioned complementary character of male and female responsibilities. You have to understand both in order to get a picture of the whole. The definition of concepts like *land ownership, sustainability, land use and management, wetland management*, to be researched in a TEK study project, have to be deduced from both male and female responsibilities and knowledge. Only after collecting the data on that basis can we concern ourselves if “Traditional Knowledge contradicts accepted scientific findings and practices” (Fowler 2000), if it contradicts it at all when *science* is defined on the basis of environmental science rather than economy. Nevertheless, the data have to be collected first, and, in order to be complete, the survey has to include both male and female knowledge.

(d) The spiritual/cultural realm

It is widely understood that sacred places on the land are to be handled with particular care. In the Christian understanding, for example, burial grounds are to be exempted from economic *development* or, when it is unavoidable, are to be moved observing special care of ceremonies. Nevertheless, hunters of the Attawapiskat First Nation spotted claim posts on graves in an old Christian cemetery at the Attawapiskat River. This act of disrespect alone would warrant a mapping of sacred places, which was partially done by Keir Consultant Inc. (1994) already, identifying burial grounds on the ancestral lands of the Attawapiskat First Nation. Taking this map as a basis, the TEK project has to complement or complete the mapping of sacred places, which will include certain land formations and bodies of water with certain spiritual meanings to the people who live on the land. The spirituality of people has to be respected, and might just be similar to environmental science interpretations to land use and management.

Although almost everybody in Attawapiskat can be counted as being Christian (Roman Catholic or Pentecost), traditional spiritual practices, beliefs and definitions in connection to land use are still very wide spread and are used to explain practices of land management, particularly in connection with activities on the land. Spirituality is the basis of

awareness for land management. How land is managed in order to sustain the following seven generations, how much game can be harvested, how trees and other plants are managed, how water is managed in order to sustain the environment is traditionally explained through spirituality. In order to assess traditional knowledge as being scientific or not, traditional spirituality and the spiritual understanding of life and environment have to be understood. A lot of explanations on *sustainability* as explained by environmental science have their traditional origins in the spiritual understanding of the cosmos. The explanations might be different, yet, the resulting assessment if the environment will keep its sustainability or not will be the same no matter if assessments originate in traditional spirituality or modern environmental science. The recording and analyzing of traditional spiritual knowledge is then the basis for assessing commonalities between *western* (scientific) and traditional knowledge and interpretations. Therefore, spirituality connected to the land has to be researched and recorded if one tries to understand and interpret Aboriginal science. The *mapping* of spirituality in traditional ecological knowledge of the Attawapiskat First Nation goes beyond geographical sites and formations and has to include explanations of practices in land management that ensure *sustainability*. However, ceremonies cannot be not discussed, and those parts of spirituality and knowledge considered *protected* by local people can only be recorded in the way researchers are advised by the elders or not be recorded at all.

Data Ownership, Use and Access

As "research in Indigenous studies should benefit Indigenous peoples at the local level and more generally" (AIATSIS 2000:3), control of the data should stay with the local participants. TEK is proprietary data. The data are owned by the First Nation. All participants in the study (researchers, respondents, research assistants) should be able to access the data from the archives of the Band. The data can be used as basis for further development in detailed research of the political system, for curriculum development and as explanation for the economic basis and ecological capacity building.

Conclusions

With the reference to capacity building we want to conclude this paper, indicating the core of our opinion why we consider TEK studies so important. TEK is more than collecting data, which can be shelved afterwards. It is not some abstract entity to be analyzed to death. Tradi-

tional Ecological Knowledge is even more than what the concept *knowledge* would stand for. It is a living organism or, in the words of the Aboriginal author of this article, "it is our life." And thus, TEK has its own right to exist, which does neither depend on justification by academic discourse nor on whether it is deemed a necessary process for environmental impact assessment by a federal act. TEK is also the basis for self-determination of the First Nation because it expresses their worldview. In Attawapiskat it is the only possibility to have input in the management of the lands where *development* has already started. Thus TEK becomes particularly important when the two different worldviews of mainstream and the First Nation collide over the different interest of management and protection of Aboriginal lands. TEK then becomes the basis the First Nation operates from, the definitions on which the First Nation explains its position. Referring to our statements, TEKs can become important for the survival of the planet or can at least be seen as the First Nations' contribution to land management practices. As the land is the basis for the life of the First Nation and its unique culture, loss of the land due to development will necessarily result in the loss of culture. Culture can only be protected when the people who practice their culture have input in how to manage its basis, the land. And for this, a TEK study is needed. In order to really protect *Indigenous Knowledge* within mainstream context, TEK data have to be collected, recorded and analyzed.

For the purpose of getting accurate data and analysis, certain rules for ensuring that *Traditional Ecological Knowledge* actually represents *the traditional* and is not used as justification for western development, collection, recording and analysis of data have to follow *pinpinayhaytosowin*, the rules of engagement the First Nation (which are all its members) sets for the research. Then TEK, as the basis of how the First Nation defines itself, becomes a powerful tool for self-determination and the basis for capacity building in dealing with *the other*.

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