TRADITIONAL KNOWLEDGE GUIDE FOR THE INUVIALUIT SETTLEMENT REGION, NORTHWEST TERRITORIES

VOLUME 1: LITERATURE REVIEW AND EVALUATION

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Executive Summary

The objective of the research completed under Phase I of ESRF-04-048 was to provide background information on the current status of traditional knowledge collection and use in impact assessment. Literature review pertaining to current legislation and policy, traditional knowledge guidelines and use in impact assessments was undertaken. This review forms the basis for the traditional knowledge guide to be prepared in Phase II. An annotated bibliography of the literature reviewed was prepared and forms an appendix to this volume. In the analyses, working concepts, terms and definitions were developed specifically for use in the guide.

The past 20 to 30 years have seen a significant change in not only the manner in which traditional knowledge is collected but also in the relative importance given to this information in the assessment process. Starting almost as a disparate collection of information, use and assessment of traditional knowledge, traditional knowledge has come to be recognized as a discipline in its own right. Both legislation and assessment practices indicate that greater Aboriginal involvement in the assessment process is necessary if this process is to accurately account for and reflect the predicted nature of effects associated with proposed projects. As a consequence, Aboriginal values and mores need to be considered and respected when traditional knowledge information is collected and used.

Résumé

La recherche effectuée durant la Phase I du FÉE-04-048 avait pour but de recueillir des renseignements de base sur l'état actuel de la collecte et de l'utilisation des connaissances traditionnelles lors des évaluations des répercussions environnementales. On a procédé à l'analyse de documents portant sur les lois et politiques actuelles, sur les lignes directrices et l'utilisation des connaissances traditionnelles lors des évaluations des répercussions environnementales. Cette analyse sert de base au guide des connaissances traditionnelles qui sera élaboré durant la Phase II. Une bibliographie annotée des documents analysés a été annexée au présent volume. Dans le cadre de l'analyse, les concepts de travail et les termes ont été définis expressément en fonction du guide.

Au cours des vingt ou trente dernières années, des changements importants sont intervenus non seulement dans la méthode de collecte des connaissances traditionnelles, mais aussi dans l'importance relative accordée à ces connaissances lors des évaluations. Au départ, la collecte de renseignements, l'utilisation et l'évaluation des connaissances traditionnelles se faisaient de façon plus ou moins improvisée, mais maintenant les connaissances traditionnelles sont devenues une véritable discipline en soi. Les lois et les pratiques d'évaluation donnent à penser qu'une participation accrue des Autochtones au processus d'évaluation est nécessaire si l'on veut que ce processus reflète correctement la nature des effets éventuels découlant des projets proposés. C'est pourquoi les valeurs et les mœurs des Autochtones doivent être prises en compte et respectées lors de la collecte et de l'utilisation de l'information sur les connaissances traditionnelles.

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Abbreviations

AEPS..... Arctic Environmental Protection Strategy
CEAA .....Canadian Environmental Assessment Agency
CEA Act..... Canadian Environmental Assessment Act
CEAM..... Cumulative Effects Assessment & Management (NWT)
DAP .....Development Assessment Process (Yukon)
EIA.....Environmental Impact Assessment
EIRB .....Environmental Impact Review Board
EISC..... Environmental Impact Screening Committee
ESRF..... Environmental Studies Research Fund
FMA.....FMA Heritage Resources Consultants Inc.
ICRC..... Inuvialuit Cultural Resource Centre
IFA..... Inuvialuit Final Agreement
ISR.....Inuvialuit Settlement Region
Kavik.....Kavik-AXYS Inc.
MVEIRB .....Mackenzie Valley Environmental Impact Review Board
MVRMA ..... Mackenzie Valley Resource Management Act
NWT .....Northwest Territories
RA.....responsible authority
RFP .....Request for Proposal
TK..... Traditional Knowledge
UFA .....Umbrella Final Agreement (Yukon)
UN .....United Nations
UNESCO.....United Nations Education, Scientific and Cultural Organization
YESAB ..... Yukon Environmental and Socio-economic Assessment Board

1 Introduction

In the fall of 2004, Environmental Studies Research Fund (ESRF) managers accepted a proposal from Kavik-AXYS Inc. (Kavik) and FMA Heritage Resources Consultants Inc. (FMA) to develop a guide "for the collection, integration, use and assessment of traditional knowledge" in project-specific impact assessments (Solicitation No. ESRF-04-048). The ESRF program "sponsors environmental and social research to assist oil and natural gas exploration companies in making wise decisions about development on frontier lands. Frontier land include those areas where the resources are located in offshore areas of the East and coasts and all lands north of the 60th parallel" (ESRF website 2005).

The guide is meant to provide a management document for consultants, proponents, and responsible authorities (RAs) focused on understanding and considering cultural differences in the conduct and analysis of impact assessment. It may also provide guidance to people conducting traditional knowledge studies, be they community members or outside consultants (traditional knowledge facilitators). It is written from perspective and experience of traditional knowledge facilitators, but may also be useful to Aboriginal communities conducting or managing their own traditional knowledge studies for impact assessments.

1.1 Objectives

The intent of the project is to address perceived deficiencies and lack of standard methods available to guide the collection, use and application of traditional knowledge in project-related impact assessments. As such, the goal is to provide a clearly stated reference guide for traditional knowledge collection, use, application and assessment relative to proposed development projects. Integral to this is the provision of the context and perceptions of Aboriginal peoples regarding the nature, scope and content of such studies.

As outlined in the project RFP, this work was to be carried out in two phases: the first to review existing literature and practice, and the second to create a 'how to' guide. As stated in the RFP:

- The goal of Phase I is to provide background, contextual information on the current practice of traditional knowledge methodology and use that will form the basis for a guide about traditional knowledge collection, integration, use and assessment specifically for project-related impact assessments.
- The goal of Phase II is the development of a traditional knowledge guide incorporating guidelines specific to addressing impact assessment requirements and meeting regulatory filings.

1.2 Scope of Work

The scope of this project includes 'lands north of the 60th parallel', specifically, the Northwest Territories and Yukon. During early scoping meetings with ESRF managers, it was determined that the main focus of the guide would be on providing examples and context relevant to the Inuvialuit Settlement Region (ISR). Where applicable and relevant, literature regarding the national (Canadian) and international context was also

included. Research included relevant government policy, guidelines and legislation; impact assessment studies with some treatment of traditional knowledge; and traditional knowledge research manuals and guidelines.

1.3 Organization of the Guide

The traditional knowledge guide is presented in two volumes. Volume 1 (Phase I work) is comprised of a literature review and evaluation. This volume is 'academic' and represents the research portion of the guide. Volume 2 (Phase II) provides direction on how to collect, use and apply traditional knowledge in the impact assessment context.

Volume 1 contains the following:

- Methodology used in the literature review, and working concepts, terms and definitions to be used in the guide (Section 2)
- Review and evaluation and of current legislation and policy, traditional knowledge guidelines and impact assessments using traditional knowledge (Section 3)
- Recommendations and comments on the general direction of traditional knowledge studies (Section 4)
- An annotated bibliography of the following (Appendix A):
    - relevant legislation, policy, policy guidelines and legal decisions
    - current impact assessment studies where traditional knowledge has been used, focusing on the Canadian north
    - existing traditional knowledge manuals, guidelines and general literature pertinent to the study

The references cited throughout Volume 1 are included under Appendix A: Annotated Bibliography.

2 Methodology for Literature Review

In-house libraries (Kavik and FMA), online databases and sources (e.g., Mackenzie Valley Impact Review Board (MVEIRB) website, United Nations Educational, Scientific and Cultural Organization's (UNESCO) Best Practices on Indigenous Knowledge database), academic holdings (e.g., University of Calgary, interlibrary loans), government libraries (e.g., National Energy Board, Canadian Environmental Assessment Agency registry), and Aboriginal organization and cultural centre catalogues (e.g., Inuvialuit Cultural Resource Centre, Dene Cultural Centre, Inuit Tapirisat of Canada) were consulted.

The literature review was organized into four categories based on the type or subject matter of the document. A secondary categorization based on geographic focus was applied within each category. Although the main focus of the research was on the northern Canadian context, a representative sample of Canadian and international studies and guidelines was also sought.

The temporal focus of the literature review was the period 2000 to 2004. However, older literature with particular applicability was also included.

2.1 Literature Types

- Legislation and Policy – policies, laws, and court cases relevant to the requirements for traditional knowledge to be considered in impact assessment.
- Impact assessments – refers to impact assessments, including environmental impact assessments conducted under the Canadian Environmental Assessment Act, where traditional knowledge studies have been used.
- Guidelines – broad principles, guidelines and specific pertinent methodologies not presented within the context of an impact assessment or other traditional knowledge study; includes traditional knowledge and traditional land use manuals.
- General – other documents not directly related to study objectives that guide the critical examination and application of the other three categories.[1]

2.2 Geographic Categories

- Northern – literature focused on the Canadian north, specifically the Northwest Territories and Yukon.
- Canadian – literature focused on the southern provinces.
- International – literature with a scope beyond Canada (e.g., Alaska, Greenland).

2.3 Working Concepts

There is much debate in the academic literature regarding the definition of traditional knowledge and traditional environmental knowledge. It is not the intent of this guide to

[1] A great deal has been written on the use and 'incorporation' of traditional knowledge. Much of this literature is not specific to the impact assessment context, but is informative to the impact assessment process. A very broad sample of this literature is provided under this category.

engage in this debate. Rather, the descriptions provided below serve to broadly describe three central 'working' concepts: traditional knowledge, traditional land use and traditional environmental knowledge. Together, these three terms are 'handles' that can be used to describe what and how traditional knowledge may be used in the context of impact assessment.

The distinction between these three terms is largely functional. In cultural terms, and in the everyday life of Aboriginal peoples, this distinction is neither logical nor appropriate. However, in the context of impact assessments, these distinctions enable the collection and application of these different types of information in ways that are appropriate to the regulatory context and the practice of impact assessment. Functionally speaking, the purpose of collecting traditional land use information in the assessment context is to create an assessment of potential impacts to traditional land use (i.e., traditional land use impact assessment). Traditional environmental knowledge, on the other hand, can contribute much valued information to the 'scientific' components of assessments. Additional details and description of these concepts are provided in the following sections.

2.3.1 Traditional Knowledge

The term 'traditional knowledge' is used in this document to include knowledge that is not strictly 'environmental' in nature; it also includes knowledge regarding information about traditional land use. It encompasses *all* categories of traditional knowledge outlined by Usher (2001): factual traditional knowledge, traditional use and management information, values and knowledge systems, as well as the "shared experiences, values, traditions, subsistence lifestyles, social interactions, ideological orientations, and spiritual beliefs unique to Aboriginal communities" described by Stevenson (1996: 281). The Royal Commission on Aboriginal Peoples' definition of traditional knowledge is also applicable:

> …oral culture in the form of stories and myths…coded and organized by knowledge systems for interpreting information and guiding action…a dual purpose to manage lands and resources and to affirm and reinforce one's relationship to the earth and its inhabitants (In Paci et al. 2002: 119).

2.3.2 Traditional Environmental Knowledge

Traditional environmental knowledge may be defined as a shared collection of knowledge, that is, the accumulated collective information in a community regarding the characteristics of the general environment that is equivalent to scientific knowledge. It may be distinguished from scientific knowledge (acquired primarily through academic study; viewed as being independent from culture) in that it is 'cultural science' (acquired through lifetimes of observation and participation; viewed as being inseparable from culture) (Fedirchuk and McCullough 2003, ESRF Annotated Bibliography 2003). It may also be distinguished from the western science practiced in impact assessments in that it is highly contextual, representing extended time periods and intensive, local geographic experience.

Traditional environmental knowledge differs from traditional land use in that it reflects the accumulated collective information in a community regarding the current general environment, i.e., essentially it is comprised of information about traditionally used resources. Specifically, it includes knowledge, both historic and current, about resource distribution and populations, schedules for resource harvesting, and species-specific

habitat and behavior, as well as the corresponding community harvesting patterns. However, it also includes information on things such as weather patterns, flood and fire cycles, effects of snowfall on travel, hunting, and other activities; information about landmarks, navigability of trails, rivers, and ice-packed ocean waters; as well as general environmental conditions.

Traditional environmental knowledge focuses on the specific characteristics of the resource or environmental element rather than on the use of that resource or element. For example, it provides information on the historical movements of a particular caribou herd, herd size, herd composition, and numbers of individuals taken. Traditional environmental knowledge is important to the interpretation of not only traditional land use patterns, but also to other impact assessment components.

2.3.3 Traditional Land Use

Traditional land use information can be defined as information about how a culture used (and uses) the land and its resources through a study of trails, place names, subsistence resource use, sacred and cultural sites, burials, settlements and camps, and other places, uses or knowledge relevant to life on the land (Solicitation No. ESRF-021, Appendix B). It refers to current use associated with some historic time depth, of a particular geographic area, as defined by the particular Aboriginal group.

Traditional land use by Aboriginal communities represents practices, developed in the precontact past, that allow for not only survival, but for cultural growth and development in the regional environment. Many aspects of these practices may have changed through time. Some of the changes were a direct result of prevailing economic conditions whereas others were related to processes of acculturation. Given the nature and magnitude of acculturation through time (e.g., in Canadian context, fur trade and Christian proselytization), it is necessary to review the historical context for cultural change in order to fully understand traditional land use and impact to traditional land use practices by proposed developments.

Because it deals with culture and cultural practices and change, traditional land use work is anthropological in nature. In this context, archaeological, historical and traditional land use sites represent a continuum of the cultural heritage of an Aboriginal community and collectively constitute heritage resources. From a practical and visible perspective, traditional land use reflects all aspects of daily activities including the types of locally used resources, as well as the locations in which the resources were procured, processed and used, the associated observances and ceremonies, and the communication routes used to access the resources. Similarly, social interactions and activities, including ceremonial activities, and their locations, and customs affecting and resulting from resource and landscape use constitute a part of traditional land use. Because of the ephemeral nature of many of these activities, the associated locations may or may not have tangible remains associated with their use.

Physical features or locales and landmarks associated with oral tradition also represent an important facet of traditional land use. These sites may or may not have had any associated cultural remains. Camp sites, cabins, traplines, fish processing areas, and other sites that were occupied or used for more extended periods of time represent aspects of traditional land use and often have structural and other feature remains that are evident. Trails, recognized landmarks, sacred areas, and rendezvous locations may have no visible, tangible cultural associations.

It is important to note that although the sites and locations themselves represent important evidence for traditional land use activities, the perspectives of the Aboriginal people on the meaning of these sites as expressed in oral tradition are also an essential component of traditional land use information. It is often this information, more difficult to obtain, that is most valuable in determining the direction and extent of 'cultural impact' relative to traditional land use. The philosophical context for resource use, site use, and site significance, as well as associated customs is of utmost importance in understanding the Aboriginal perspective of their relationship to the land, the resources and the cultural structure for coping with (appeasing) the forces of nature in daily survival. As such, this connection between culture and environment is one of the key 'relationships' to be addressed in impact assessments.

2.3.4 General Terms and Concepts

Aboriginal versus indigenous: Internationally, the term 'indigenous' is more widely used and accepted in reference to peoples who have inhabited particular landscapes from 'time immemorial'. In this guide, the term Aboriginal will be used to refer to such peoples, as this is generally understood in the Canadian context to refer to people defined as Indian, Métis and Inuit under the Section 35(2) of the Constitution Act.

Consultation and traditional knowledge collection: While traditional knowledge may be collected during consultation with Aboriginal groups for an impact assessment, 'consultation' does not constitute the collection of traditional knowledge. Similarly, while the collection and use of traditional knowledge during a formal traditional knowledge study necessarily involves consultation with Aboriginal peoples, it is not 'consultation' per se, but rather represents Aboriginal participation in the impact assessment.

Environmental versus ecological: The term 'environmental' is used in preference to 'ecological' in the phrase traditional environmental knowledge as the term has broader connotations than the term 'ecological'. The term 'ecological' appears to be more closely associated with the physical sciences, and thus implies an exclusion of socio-cultural concerns. For example, Usher refers specifically to traditional *ecological* knowledge – as opposed to the broader term 'traditional knowledge' – as "the knowledge claims of those who have a lifetime of observation and experience of a particular environment and as a result function very effectively in that environment" (2000: 186).

Incorporation: The terms 'use' and 'application', as opposed to 'incorporation' or 'integration', are used throughout this guide, as the latter are felt to imply a relationship in which traditional science is subsumed within western science. The potential for traditional knowledge to complement western science indicates the need for equivalency in the approach to its application, as opposed to the more narrow, hierarchical interpretation of its 'incorporation' into data verification and issues scoping.

Impact assessment: This term is used in preference to the more commonly used term 'environmental impact assessment' as it encompasses social impact assessment, and other components of impact assessments that may not be explicitly linked to changes in the physical environment.

Impacts versus effects: Many impact assessments use these two terms interchangeably. They are used here to indicate the difference between 'impacts', or residual effects that cannot be mitigated, and 'effects', which are all the consequences or changes associated with a proposed project.

Responsible versus regulatory authority: responsible authorities are federal authorities whose powers include the ability to trigger an impact assessment for a particular project (FNEATWG 2005), and/or who have interest in and decision-making power regarding a particular assessment. Regulatory authorities may have decision-making powers that affect a project application, but may or may have a role in the impact assessment.

Traditional: The term 'traditional' is somewhat problematic. For many it gives the impression that this type of knowledge is not current, and therefore not relevant to current management practices. It is used almost exclusively in current impact assessment practice to refer to the use and knowledge of Aboriginal s with respect to the environment, thereby excluding other local users who may have generations of knowledge about a local landscape.[2]

The primacy given to Aboriginal traditional knowledge in the assessment context seems to be rooted in a 'time immemorial' relationship to traditional territories and Treaty status federally. It is used here to encompass the concept of 'culture as a continuum' because it refers to "social attitudes, beliefs, principles, and conventions of behaviour and practice derived from historical experience", which are also "cumulative and open to change" (Berkes 1999).

Traditional land use study: A traditional land use study is a detailed study of traditional land use sites over the regional extent of an Aboriginal group's traditional territory. It is neither practical nor appropriate to conduct this type of traditional land use work in the context of impact assessment. Rather, the focus of traditional knowledge and land use work for assessments should be on determining participants' perspectives on the potential impacts of a proposed project, implying a less detailed and more localized approach.

Traditional (or Aboriginal or 'cultural') science: This is an invented term – it is not used in the literature – and is used in this guide to illustrate how traditional knowledge compares to Western science.

[2] The five-year review of Canada's Environmental Assessment Act (Bill C-9, January 2003) sought to redress this omission somewhat by including clause 16.1, which states that, "*community knowledge* and Aboriginal traditional knowledge may be considered in conducting an environmental assessment."

3 Evaluation of Traditional Knowledge Literature

National and regional legislation and policy, traditional knowledge manuals and guidelines, and traditional knowledge studies conducted for impact assessments were reviewed and analyzed. Some general research regarding the collection and use of traditional knowledge in biophysical studies or resource management was also considered. International literature was included where particularly relevant. Analysis and summary of the literature is presented in the context of professional experience collecting and using traditional knowledge for numerous impact assessments, both north and south of 60. The recommendations and conclusions presented below are as found in the literature.

3.1 Legislation and Policy

Included in this category of the literature review are government cumulative effects assessment and management strategies, umbrella and land claim agreements, resource management and assessment acts, policy statements on traditional knowledge, federal assessment legislation, documentation on the five-year review of the CEA Act, and Canadian court decisions regarding on 'duty to consult' with First Nations. The focus was primarily on northern legislation and policy (i.e., NWT and Yukon), with the inclusion of national and international policies that are applicable to the north.[3]

3.1.1 Legislation and Policy – Northern

In the NWT and the Yukon, several defining documents set the context for impact assessment and review. In the Inuvialuit Settlement Region (ISR), a region of the NWT, the Inuvialuit Final Agreement (IFA) (1988) – the Western Arctic (Inuvialuit) Claims Act – was the departure point for establishing an Inuvialuit impact and review process. In the broader territorial context, the Mackenzie Valley Resource Management Act (MVRMA) (1998), created an integrated co-management regime for land and waters in the Mackenzie Valley, and led to the creation of the Mackenzie Valley Environmental Impact Review Board (MVEIRB). This resulted from the settlement of the Gwich'in Comprehensive Land Claim and the Sahtu Dene and Métis Comprehensive Land Claim Agreements. Aboriginal territories covered by the MVRMA include those of the Gwich'in First Nation, the Sahtu First Nation, or other Dene or Métis of the North Slave, South Slave or Deh Cho region of the Mackenzie Valley.

In the Yukon, impact assessment is dealt with through the Development Assessment Process (DAP), which was established under the Umbrella Final Agreement (UFA) (1993) between the governments of Canada and the Yukon, and the Council for Yukon Indians. Pertinent parts of these various pieces of legislation and/or the guidelines of the resulting management and review organizations are discussed below.

[3] While many pieces of government legislation and policy do not specifically mention traditional knowledge, consultation with Aboriginal peoples is often required before development projects can proceed. Only consultation requirements that provide specific and explicit direction regarding traditional knowledge have been reviewed for this guide.

3.1.1.1 Inuvialuit Final Agreement

Applicable in the ISR, the IFA states in its Principles that:

1) The basic goals expressed by the Inuvialuit and recognized by Canada in concluding this Agreement are (p.1):

(a) to preserve Inuvialuit cultural identity and values within a changing northern society

(b) to enable Inuvialuit to be equal and meaningful participants in the northern and national economy and society

(c) to protect and preserve the Arctic wildlife, environment and biological productivity

These goals and principles are to be carried throughout the co-management bodies and environmental management process established under the IFA. The Environmental Impact and Review Board (EIRB) and the Environmental Impact Screening Committee (EISC) were set up specifically to address environmental impact and review. The EISC screens proposed project and will refer any project that "could have significant negative environmental impact and is subject to an assessment and review process under the IFA" to the EIRB (EISC 2004: 19). The EIRB Guidelines for Impact Assessment (1994) state that both environmental and social effects need to be considered. These Inuvialuit organizations may decide to refer a proposed project application to "an alternative review process [e.g., CEAA]…if it is likely to be as broad, rigorous, independent, open, and sensitive to Inuvialuit concerns as the EIRB process" (EISC 2004: 19). There is no specific mention of either traditional or local knowledge in the IFA, or in the operating guidelines of the EISC and EIRB. However, given that they are Inuvialuit-driven, their very function and application implies the inclusion of Inuvialuit traditional knowledge in the impact assessment process.

3.1.1.2 Mackenzie Valley Resource Management Act

The MVRMA does mention traditional knowledge in its text. Specifically, under Part 6: Environmental Monitoring and Audit, it states that the responsible authority "shall, subject to the regulations, analyze data collected by it, scientific data, traditional knowledge and other pertinent information for the purpose of monitoring the cumulative impact on the environment", clearly establishing the expectation that traditional knowledge will be collected as part of the impact assessment process.

The review board established under the MVRMA, the MVEIRB, provides the most comprehensive and instructive guidelines available on the collection and use of traditional knowledge for impact assessments. Traditional knowledge is included in their Environmental Impact Assessment Guidelines (March 2004), their Generic Terms of reference for the Environmental Assessment of Oil and Gas Developments in the Mackenzie Valley (April 2001) and, most recently, in their Guidelines for Incorporating Traditional Knowledge in Environmental Impact Assessment (July 2005).

The impact assessment guidelines encourage proponents to engage local communities who might be affected by a proposed project "early in the planning stage" (p. 10), and to include traditional knowledge in the formulation of impact predictions. The Generic Terms of reference, though a few years older, include the expectation that proponents explain how they collected and used traditional knowledge. Section 3: Traditional Knowledge explains that developers need to contact "potentially affected First Nations,

Aboriginal groups and communities" and identify potentially affected "traditional use and culturally significant areas" (Section 3.1, p. 13). Developers also need to provide "evidence that TK was used and considered in the development" (Section 3.2, p. 13).

The traditional knowledge guidelines offer further direction in suggesting where in the impact assessment process traditional knowledge should be used. They state that, "The main purpose for incorporating traditional knowledge into the EIA process is to provide participants in an environmental impact assessment greater knowledge and understanding of the environment in which a development is proposed [baseline information], the potential impacts of that development [impact prediction] and the significance [impact prediction] of those impacts" (p. 8). Further, traditional knowledge can be used early in the process in scoping. They explain that the MVEIRB makes use of traditional knowledge to identify issues and determine geographic boundaries of impact [study areas]. The guidelines instruct proponents to describe the following in their assessment report (p. 23):

- the steps taken to "work with" traditional knowledge holders
- how traditional knowledge has "influenced" project design, impact assessment and mitigation
- a plan for future cooperation with traditional knowledge holders to further access traditional knowledge (e.g., monitoring and mitigation)

The MVEIRB may seek to verify that the traditional knowledge information presented in the impact assessment is "reliable and credible" by ensuring that it (p.24):

- "… was collected and peer-reviewed with the Aboriginal community or traditional knowledge holders in accordance with appropriate, community-specific protocols…
- … was approved by the appropriate individuals or organizations for use using the principle of prior informed consent"

The guidelines also assert that Aboriginal organizations may be asked, during the information request process, "to confirm that traditional knowledge was collected and used in an appropriate manner" (p. 24). These statements make the need for informed consent, and follow up and verification of results with the community and participants, implicit. Throughout the guidelines, emphasis is placed on working with Aboriginal communities, and on respecting their protocols.

The guidelines affirm earlier legislation and policy commitments in ensuring that traditional knowledge is collected and used in impact assessments conducted in the Mackenzie Valley, and offer additional details on where and when it should be collected and used in the impact assessment process. However, they are not (nor is it within their scope to do so) very helpful on mechanisms to collect, conduct or apply traditional knowledge in the impact assessment context.

3.1.1.3 Cumulative Effects Assessment and Management Strategy and Framework

The Cumulative Effects Assessment and Management (CEAM) Strategy and Framework is a "collaborative effort to improve environmental management and stewardship in Canada's Northwest Territories". The CEAM vision foresees making recommendations to decision-makers to facilitate (CEAM website 2005):

- the protection of ecological integrity

- the building of sustainable communities, including social and cultural dimensions
- responsible economic development within a sound environmental management framework

The "Blueprint" document for implementing CEAM notes that all components of the framework include:

- traditional knowledge and western science
- community and organization capacity, and capacity-building
- a broad definition of environment, including social, cultural, economic, biological and physical aspects
- adaptive management
- the precautionary principle

CEAM is a collaborative, multi-stakeholder process that stresses the importance of community-based approaches. The 'blueprint' recognizes that there are challenges and gaps to be addressed with respect to traditional knowledge, and feels that it is one of the elements essential for the implementation of the CEAM Strategy and Framework.

3.1.1.4 Yukon Umbrella Final Agreement

Chapter 12 of the UFA established a development assessment process (DAP) that has, among other things, the following objectives (1993: 101):

- to recognize and enhance the "traditional economy of Yukon Indian People and their special relationship with the wilderness environment"
- to guarantee the participation of Yukon Indian People in the DAP, and to make use of the "knowledge and experience" of Yukon Indian People
- to protect and promote the "well-being of Yukon Indian People and of their communities" (and other Yukon residents)

In addition, the Yukon Development Assessment Board and other designated offices are instructed to consider the special relationship of Yukon Indian People to the land, as well as the "need to protect [their] cultures, traditions, health and lifestyles" when carrying out their duties (UFA 1993: 104).

The Yukon Environmental and Socio-economic Assessment Board (YESAB) was established with Bill C-2, the Yukon Environmental and Socio-economic Assessment Act, in May of 2003. The Act reiterates the points made above with regard to Yukon Indian People in clauses pertaining to the assessment process (Section 42(g)) and the conduct of review panels (Section 107(e)). Traditional knowledge is treated under a General Requirement (Section 39) stating that the Board will give "full and fair consideration to scientific information, traditional knowledge and other information provided to it or obtained by it under the Act" (p. 22). Proponents are expected to consult with any First Nation that may be affected by "significant environmental or socio-economic effects" in their territory prior to submitting a proposal to the Board (Section 50(3), p. 29). No specific mention in made in the Act regarding the use and application of traditional knowledge in the impact assessment process.

3.1.2 Legislation and Policy – Canadian

Prior to the five-year review of the CEA Act, federal impact assessment legislation did not contain specific measures for the inclusion of traditional knowledge. The 1992 version of the Act could be broadly interpreted to have addressed Aboriginal concerns and traditional knowledge under its definition of "environmental effect" as "any change that the project may cause in the environment, including any effect…*on the current use of lands and resources for traditional purposes* by Aboriginal persons or on any structure, site or thing that is of historical, archaeological, palaeontological or architectural significance...[emphasis added]" (Section 2(1)).

The five-year review of the CEA Act and the enactment of Bill C-9, led to the addition of the following clause to Section 16.1: "Aboriginal traditional knowledge *may* be considered in conducting an environmental assessment [emphasis added]." Clearly, this is a discretionary clause, a move that was decried by some participants involved in the five-year review (Campbell 2002). CEAA has recently (2004) produced 'Interim Principles' for how traditional knowledge should be considered for impact assessments. These principles are currently very generic and broad. CEAA is working with an Aboriginal Advisory Committee to create more detailed guidelines.

The NEB's Filing Manual (2004) discusses traditional knowledge in both the consultation (s. 3.3) and the Environmental and Socio-economic Assessment (s. A.2) sections. Proponents are instructed to "consider augmenting the application with local and traditional knowledge" and 'integrate' it, "where appropriate" into project design. Opportunities must also be provided for individuals who provide traditional knowledge to "confirm the interpretation of the information and how it was used in the project design."

Court cases such as Sparrow (1990) and Delgamuukw (1997), and the more recent Haida and Taku River Tlingit supreme court decisions (2004) have given new meaning and increased profile to Aboriginal rights and 'meaningful consultation' in Canada. In the narrower context of Canadian impact assessment process, this had led to a heightened awareness of Aboriginal concerns and the importance of including traditional knowledge.

3.1.3 Legislation and Policy – International

The Arctic Environmental Protection Strategy (AEPS) was established in 1991 by a group of nations with circumpolar interests. In 1997, AEPS produced guidelines that, among other things, outlined tasks important to impact assessments conducted in the Arctic, including (p. 6):

- scoping sufficient to include "all potential environmental, socio-cultural and economic impacts, especially impacts on the traditional uses of resources and livelihoods of indigenous peoples"
- baseline information that combines "traditional and scientific knowledge"
- the use of traditional knowledge in the "understanding of possible consequences of predicted impacts and in reducing uncertainties"

The Guidelines state that traditional knowledge needs to be accepted as an "important source of information in assessing potential impacts" (p. 9). The "early and full involvement of indigenous people and other local communities, who hold special knowledge of the Arctic" is considered "one of the most important features in Arctic assessment". Additionally, public participation in scoping is needed for the efficient use of traditional knowledge. Without this critical step, it is "virtually impossible to cover the

full range of diverse and complex values and viewpoints typical of the Arctic inhabitants." This becomes particularly important for "controversial activities", and can be a crucial first step in "building mutual confidence in fair environmental assessment and problem-solving" (AEPS 1997: 15).

The Guidelines also offers suggestions for the determination of impact significance. Both the level of public concern and the impact on social values and quality of life can be used to determine significance. In recognizing the fact that developers, indigenous people and other groups can have "wildly different world views through which they interpret assessment findings", the Guidelines recommend that traditional knowledge be "analyzed and evaluated using suitable methods for determining the significance of impacts" (p. 23).

Also included in the Guidelines are recommendations regarding mitigation and monitoring. In the Arctic, local Aboriginal people and communities are often consulted with respect to mitigation programs, and should be consulted about monitoring programs that may affect them. Traditional knowledge should be used to implement monitoring. In short, "indigenous people should be provided with the opportunity to contribute their traditional knowledge throughout the process" (P. 36).

While the AEPS Guidelines have particular relevance to the conduct of impact assessments in the Arctic, the importance and role of traditional knowledge in environmental conservation, sustainability and management has also been asserted in other international agreements. Through agreements such as Agenda 21 and the Convention on Biological Diversity, United Nations members are called upon to strengthen national measures for including traditional knowledge in environmental management.

3.2 Impact Assessments

Impact assessments, feasibility studies, traditional land use and traditional knowledge reports, workshops and training, research and consultations carried out in Northwest Territories and Yukon for project-specific impact assessments were surveyed. Also included in this category are analyses of project-specific impact assessments and of impact assessment processes. Major impact assessments conducted north of 60 (largely in the Northwest Territories) were reviewed, and, as a considerable body of consultant's reports prepared for impact assessments south of 60 (largely in western provinces) were also available to researchers, these were scanned to gain an understanding of trends in impact assessments with regard to traditional knowledge. A few international references were included for their particular relevance to the Canadian context.

3.2.1 Impact Assessments – Northern

A number of the impact assessments conducted in Canada's north in the mid to late 1990s for large-scale projects have been subject to extensive analysis and critical comment, particularly with respect to the lack of community consultation and/or the inclusion of traditional knowledge (Burnaby 2003, Inkpen 1999, Mulvihill and Baker 2001, Ross 2004, Subcommittee of the Intergovernmental Working Group on the Mineral Industry 1997, Stevenson 1996, Wismer 1996). This has led to greater attention being paid to traditional knowledge in the context of impact assessments by responsible authorities (RAs), proponents and impact assessment practitioners.

As noted in the Legislation and Policy section above, government guidelines are now much more detailed in the direction they provide on expectations regarding the inclusion and use of traditional knowledge in northern assessments. However, there are some who would argue that, in recent years, project terms of reference have actually become narrower in scope with respect to requirements to include traditional knowledge (Burnaby 2003, Inkpen 1999, Mulvihill and Baker 2001). The Berger Inquiry for example, held in the late 1970s, though not a formal impact assessment per se, established a precedent for how community consultation in the north should be done. The terms of reference for the Ekati (1996) and Voisey's Bay (1998) impact assessments both broadly stipulated a 'full and equal consideration' of traditional knowledge.[4] The proponent for the Voisey's Bay project encountered difficulties in addressing this consideration, and, as a result, the assessment panel recommended that the federal authorities develop a policy for the inclusion of traditional knowledge in impact assessment (Voisey's Bay Mine and Mill Environmental Assessment Panel 1998).

The terms of reference for the Diavik mine (1998) were also quite broad with respect to traditional knowledge. They required that traditional knowledge be fully considered "where appropriate when assessing the effects of the project" (1998:12). RAs asked that, "sufficient information" on traditional knowledge "be made available … so that conclusions can be drawn and understood by reviewers" (p.12). Such explanations would include discussions of significance or the lack of significance, and cause-effect relationships.

In two more recent northern impact assessments, the Devon Offshore Exploratory Drilling Program (2004) and the Mackenzie Gas (Pipeline) Project (2004), traditional knowledge was part of the required assessment scope. In the case of the Devon project, which was a coordinated comprehensive study, the National Energy Board (2002) instructed the proponent to conduct an impact assessment that would consider IFA requirements, land and resource use, social cultural patterns, traditional knowledge and Inuvialuit interests and harvesting. The Mackenzie Gas terms of reference stated that traditional knowledge is an important part of project planning and the impact assessment process. The application of traditional knowledge to the impact assessment process was seen as a flexible process in that it 'may' be used to contribute to baseline studies, project design, issue identification, impact and significance evaluation, mitigation and monitoring (Joint Secretariat and CEAA 2003). Sweeping statements such as 'full consideration' or 'full and equal consideration' are not part of the requirements regarding traditional knowledge. However, in both cases, proponents worked closely with local Aboriginal groups to gather traditional knowledge. Devon used a participatory action approach in which local Inuvialuit were engaged and trained to carry out the traditional knowledge study (Devon Canada Corporation 2004). The Mackenzie Gas Project also took a participatory approach; traditional knowledge working groups were formed and local communities were supported in conducting their own studies (Mackenzie Gas 2004).

[4] Two other, 'northern' impact assessments conducted in the early 1990s - the North Central hydroelectric project in northern Manitoba and the Great Whale hydroelectric project on James Bay – were also very broad in scope. The Great Whale assessment was "ambitious" and "precedent-setting" in terms of its "responsiveness to diverse stakeholder input" and for the stress it placed on "intercultural considerations" (Mulvihill and Baker 2001: 373-375). In the case of the North Central project, a majority of the Review Panel and the Chairperson were Aboriginal - a Canadian first. A high level of involvement on the part of local communities was an important aspect of the entire impact assessment process, and local people were actively involved in setting the terms of reference (Inkpen 1999).

3.2.2 Impact Assessments – Canadian

At a workshop of Canadian impact assessment practitioners specializing in traditional knowledge held at the Banff Centre for Management participants declared that, "The inclusion of traditional knowledge is handled with very poor effectiveness under the federal CEAA legislation", and there is little or no guidance available from the Agency itself (Emery 2000). Others feel that traditional knowledge is currently "not playing a significant role in environmental assessment" and explain how and why this is the case (Paci et al. 2002: 112, Winds and Voices 2000). Analysis of Canadian impact assessment processes and literature regarding traditional knowledge has identified several areas where progress[5] can be made with respect to the participation of Aboriginal peoples and the collection and application of traditional knowledge[6]:

- *Meaningful consultation*. Due to recent supreme court decisions, many Aboriginal groups are using the term 'meaningful consultation' in their discussions with developers and regulators. Aboriginal peoples want a greater decision-making role in the impact assessment process, which ultimately implies a political shift in power relations and control (BCFNEAWG 2000, Labour 2003a, Paci et al. 2002, Winds and Voices 2000).
- *Participation in overall impact assessment process*. One of the points most frequently stressed in the literature is that local Aboriginal communities potentially affected by a proposed project need to become more involved in *all* aspects of the impact assessment process. They have an "immediate and direct reliance" on the land and "hence a lower tolerance to environmental effects" (Winds and Voices 2000: 22, BCFNEAWG 2000). The literature suggests several areas where the active participation of Aboriginal peoples could be beneficial (Burnaby 2003, CEAA 2004, Emery 1997, FNEATWG 2005, MVEIRB 2005, Paci et al. 2002, Winds and Voices 2000):
  - creation of terms of reference (not just review of draft)
  - definition and determination of assessment scope; this includes not just issue identification and/or the selection of key valued ecosystem or social components, but also the definition of geographic and temporal boundaries and issue matrices
  - design of traditional knowledge study or the setting of requirements for the traditional knowledge study to be conducted
  - selection of impact assessment consultants for the traditional knowledge study, or freedom and support to conduct own studies (including biophysical and socio-economic) if so desired
  - input into project design, not just in terms of moving a well pad or minor re-routing of pipelines, but also contribution to the selection of project alternatives and overall project design
- *Environmental stewardship*. While it is both unrealistic and inaccurate to make generalizations about Aboriginal cultures, one of the fundamental values shared by many is a profound sense of respect for and stewardship of the natural environment.

[5] The approaches presented in Volume 2: Using Traditional Knowledge in Impact Assessments of this guide provide some suggestions and real-world examples of how Aboriginal peoples involvement in impact assessment may be improved.
[6] These categories are equally applicable in Canada's north. They are presented in this section, as comments from the literature reviewed were generally directed at federal processes. Where recommendations put forward in policy documents coincided with those from the impact assessment literature, they have been cited.

As a result many Aboriginal groups see the impact assessment process as a "platform for a larger inclusive mechanism for dealing with a variety of outstanding issues that are largely environmental…a forum requiring participation by project operators or proponents" (Paci et al. 2002: 121). Aboriginal peoples will have a more regional and 'bigger picture' sense of what an impact assessment process is about than most practitioners, proponents or RAs, and these perspectives may be addressed by the inclusion of traditional knowledge.

- *Application and use of traditional knowledge*. The current wording and emphasis on the 'incorporation' or 'integration' of traditional knowledge is not appropriate to the role that Aboriginal communities see themselves as being able to play in the impact assessment process, nor to the cultural context of traditional knowledge. Traditional knowledge is "inseparable from the environment and is rooted in culture" (Burnaby 2003: 12). The impact assessment process needs to accommodate the cultural values represented by traditional knowledge. There is a risk of conflict with Aboriginal values and worldviews when one tries to make traditional knowledge "tangible" by separating it "from the whole" or taking it out of context (Burnaby 2003: 12). Others have observed that it has "proved exceedingly difficult to reformulate scientific method to accommodate cultural values" (Paci et al. 2002: 115). In other words, the "inclusion of…[traditional knowledge] requires adaptation of the general application of the assessment process, allowing for variation that can meet the needs of…[Aboriginal] communities" (Paci et al. 2002: 120). Some feel that legislation to address equity and ecosystem issues is required before traditional knowledge can be applied effectively to the impact assessment process (Paci et al. 2002).
- *Significance Determination*. The need to address the cross-cultural implications of applying traditional knowledge to existing impact assessment methods is especially critical when it comes to determining the significance of impacts. Aboriginal values and perspectives need to be reflected in the assessment of effects to traditional use, and traditional knowledge needs to be used in determining significance (CEAA 2004, MVEIRB 2005, Winds and Voices 2000).
- *Follow-up*. Follow-up (e.g., review of draft results, information verification) with traditional knowledge participants and community representatives is currently one of the weakest aspects of traditional knowledge studies. Impact assessment schedules and community capacity are just two of the factors that may impede follow-up. However, it nonetheless remains a crucial aspect of a traditional knowledge study (CEAA 2004, FNEATWG 2005, MVEIRB 2005).
- *Timing and schedules*. The needs of corporate (proponent) timelines and the regulatory process are one of the most difficult challenges that Aboriginal communities face when participating in the impact assessment process. This difficulty underlines the importance of involving Aboriginal groups early in the process (see below). Many authors recommend that Aboriginal communities have some input into the impact assessment schedule, so that they have adequate time to conduct internal community consultations and meaningful participation in the impact assessment studies (BCFNEAWG 2000, Burnaby 2003, Emery 1997, MVEIRB 2005, Winds and Voices 2000). There is often enough time to allow community participation in the impact assessment if assessment managers and the proponent recognize the need to contact the communities sufficiently early in the field programs to allow them to participate in and contribute to the various discipline data collections.

- *Early consultation*. Consultation with potential affected Aboriginal communities is required *early* in the process (CEAA 2004; MVEIRB 2004, 2005). To some proponents, 'early' is once preliminary engineering plans are in place. To some Aboriginal peoples, consultation at the stage when oil and gas leases are granted is 'early' . Early consultation and sharing of traditional knowledge can provide valuable information for scoping, and the identification of issues.
- *Informed consent*. It is essential that Aboriginal communities and traditional knowledge participants understand the nature of the impact assessment process and of the proposed project that it seeks to address to participate effectively in providing traditional knowledge. Impact assessment managers and practitioners, RAs, proponents and, especially, traditional knowledge facilitators, need to ensure that Aboriginal communities and participants have informed consent. Are the implications of the proposed project fully understood? Do participants know how and where the traditional knowledge they are providing will be used? Will participants (or the larger community) have an opportunity to review and verify the findings of the traditional knowledge study before it is published? Do participants in the traditional knowledge study understand the scope and limitations of the impact assessment? These are all questions that need to be addressed to obtain informed consent and participation (CEAA 2004, FNEATWG 2005, MVEIRB 2005).
- *Mitigation and monitoring*. The participation of Aboriginal people and the need for traditional knowledge in designing mitigation and monitoring programs is widely recognized. However, what is not widely understood is that many Aboriginal communities feel that, without "some authority of enforcement for noncompliance at the community level", their contribution has little or no meaning (Paci et al. 2002: 120).

There has been ongoing, but slow, improvement in the inclusion of Aboriginal peoples and their traditional knowledge in the Canadian impact assessment process over the last decade. Progress is much slower south of 60, where provincial regulations often take precedence. Thanks to the comprehensive land claims and legislative context north of 60, the process itself dictates that it is impossible to conduct impact assessments without consulting Aboriginal people. The ultimate approval for a project application rests with the RAs. And yet the literature indicates that there remains much work to be done in establishing acceptable standards for the collection, use and application of traditional knowledge in the impact assessment process. It is precisely this deficiency that this work is attempting to speak to. Suggestions for how to deal with some of the challenges described above are provided in Volume 2 of this guide.

3.2.3 Impact Assessments – International

The most helpful and revealing comments found in the international impact assessment literature reviewed are perhaps those made by Inupiat mayor Eben Hopson of Alaska's North Slope Borough during hearings associated with the Prudhoe Bay Gas Pipeline proposals (Hopson 1977). While Mr. Hopson's comments were made over 25 years ago, and much progress has been made in addressing similar concerns in Canadian impact assessments, they are still relevant to today's practitioners, and are reflective of perspectives found in today's literature.

The "biggest deficiency in the environmental impact assessment connected with the gas pipeline proposals," Mr. Hopson stated, "is that they fail to take adequate account of the larger ecological context of the proposed corridors. Therefore, they fail to deal adequately

with the relationship between the pipelines and the Beaufort Sea" drilling programs. Mr. Hopson also submitted a testimony to the Berger Inquiry. The Inupiat are closely tied, both culturally and historically, to the Inuvialuit.

The following comments reflect how many northern peoples viewed impact assessment reports at the time:

> They commit information overkill. They reveal nothing by talking about everything. They are usually poorly written and hard to read. They are poorly organized, and over-generalized. They are seldom site-specific, so they seldom make useful reference texts for our land use planners. And, they are often inconclusive about the balance of risk to our people and our land. They constitute an undisciplined discipline, and I feel that our environmental scientists who write them do all of us a disservice.

Mr. Hopson added perspective on what this means:

> Any EIS process that fails to reflect our knowledge [Inupiat] of the Arctic to protect our traditional use values is of no use in the protection of our environmental security.... Successful protection of our national Arctic environmental values depends upon the protection of our Inupiat traditional land use values. Obviously, we need to make an effort at cross cultural environmental impact assessment.... From our point of view, those who are licensed to profitably exploit our land for its subsurface wealth should regard themselves as very privileged, and privilege carries heavy responsibility.

3.3 Guidelines

Literature covered in this category includes any guidelines or literature containing recommendations for the collection and use of traditional knowledge. Of the documents surveyed, only a small number were specifically written in the context of traditional knowledge and impact assessments, and two of these are government 'policy' documents. None of them contain detailed instructions or guidance. (The government-produced documents, the MVEIRB guidelines and CEAA's Interim Principles on traditional knowledge, are both discussed in the Legislation and Policy section.) Most of the guideline-type literature included, then, speaks more to the overall process of impact assessment practice, the 'generic' collection of traditional knowledge, and generic social science and interview techniques.

3.3.1 Guidelines – Northern

The main focus of the literature survey was on collecting instructive material regarding social science and traditional knowledge research in the north. A number of northern organizations have produced guidelines that are helpful and provide direction on community expectations for consultation and research (Arctic Borderlands Ecological Knowledge Co-op 2005, Aurora Research Institute 2004, Clarkson and Andrea 2002, Council of Yukon First Nations 1995, 2000, Dene Cultural Institute 1998, Inuit Circumpolar Conference 1996, Inuit Tapirisat of Canada 1998, Inuit Tapirisat of Canada and NCP Secretariat 2004, Hart 1995, Johnson 1992, Lutsel K'e Dene First Nation 2001, Nakasuk et al. 1999, Nunavut Research Institute and Inuit Tapirisat of Canada 1998, Sherry 1999, West Kitikmeot Slave Study). In the Inuvialuit Settlement Region, consultation of the Community Conservation Plans is a critical step for impact assessment research and project planning.

Consultants working in the north have also written a number of reports addressing the need for both the collection and use of traditional knowledge for environmental management and decision-making in the north; some of these provide guidance on how such work should be conducted (AXYS 2000, Kavik-AXYS 2002 (three reports on cumulative effects assessment), Kavik-AYXS 2003, Usher 2001). Northern government departments have produced guidelines that are instructive to social science research (Government of the Northwest Territories 1990, Smith et al. 2000). Articles by scientists who have shared their experiences working with northern Aboriginal people can also provide insight into protocols for conducting traditional knowledge research in the north (Huntington 1998, Oakes and Riewe 1996, Roberts 1994).

3.3.2 Guidelines – Canadian

The literature survey of guidelines relevant to the national context for impact assessments was less comprehensive than that for northern guidelines. A number of government agencies and departments have produced guidelines that are available to the public (Aboriginal Affairs Branch, B.C. Ministry of Forests 1996, Cadieux 2000, Garvin et al. 2001, Honda-McNeil and Parsons 2003, Parks Canada 2000). There are three very instructive guidebooks published by Aboriginal organizations (Acres International 1995, Tobias 2000, First Nations Environmental Assessment Technical Working Group 2005). Consultants working in the field have also been involved in the creation of guidelines relevant to traditional knowledge and impact assessment (Brascoupé and Mann 2001, Hegmann et al. 1999, Labour 2002). Academic guidelines on conducting community-based research and on working with Aboriginal people are also available (Robinson 1994, Scott and Receveur 1995, Menzies 2001).

3.3.3 Guidelines – International

The Alaska Native Knowledge Network and the MOST/NUFFIC best practices database are two very informative online sources of information on traditional knowledge collection. Organizations that work world-wide, such as the United Nations and the World Bank, have published a great deal of research on the topic of traditional knowledge. Some of these sources were consulted (Daes (n.d.), Emery 2000, Grenier 1998, Johannes 1993, Management of Social Transformations Programme 1999, Secretariat of the Convention on Biological Diversity 2004, World Bank Group 1991). Other international guidelines have provided perspective on how impact assessment and resource management processes in other countries deal with traditional knowledge (Berkes 1999, Dahl 1998, Morin-Labatut 1993, NSW National Parks and Wildlife Service 2003)

3.4 General

The general literature category consists of biophysical research and co-management research that includes traditional knowledge; internal government policies regarding traditional knowledge (e.g., NWT) (not specific to the impact assessment process); intellectual property rights; and discussions regarding the role, nature and importance of traditional knowledge. While not directly relevant to the impact assessment process, they were used to inform thinking on how traditional knowledge can be applied to the scientific studies and research required for impact assessments.

4 Direction for Traditional Knowledge Studies

It was only 20 to 30 years ago that the value and importance of traditional knowledge began to be recognized by Western societies. One of the earliest precedents in Canada was the Berger Inquiry (1974-1976). Internationally, the Brundtland report (WCED 1987) brought the role of Aboriginal peoples in environmental matters to the world's attention. The practice of impact assessment in Canada dates from the 1980s, and the consideration of traditional knowledge in the impact assessment context is younger still. Project Terms of reference (i.e., essentially content guidelines for impact assessments) only began making reference to traditional knowledge in the early 1990s. Since that time, there has been a continual evolution and refinement of the use of traditional knowledge, and of the participation of Aboriginal peoples, in impact assessment, and while much has been written on the topic, as yet there currently exists no formal, standard methodology for the use of traditional knowledge in impact assessments in Canada. Volume 2 of this guide attempts to address this deficiency.

4.1 History and Current Trends

The relative importance given to traditional knowledge in impact assessments may be gauged by where and how it appears in an assessment. Early assessments that included Aboriginal issues (mid-1990s) sometimes included a list of related issues in the public consultation section. Aboriginal concerns were often only brought forward 'after-the-fact' by Aboriginal stakeholders at hearings. Once Aboriginal peoples started being actively consulted with regard to their concerns about their traditional use (mid to late 1990s), appendices containing 'traditional land use studies' were added to the larger impact assessment application. These appendices usually contained a record of historical and current traditional resource uses, perhaps some comments regarding traditional environmental knowledge, a list of issues and concerns (frequently), and (infrequently) recommendations or suggested mitigation measures. In more recent years (late 1990s and early 2000s), traditional land use work has moved into the main body of the assessment comprising a separate section of the central volume of the assessment application. Traditional land use has become an assessment component in its own right, and techniques normally used for other assessment components are now being applied to the assessment of impacts to traditional use. 'Traditional Knowledge and Land Use' sections present both baseline and impact assessment findings, include spatial measurements and analyses of impacts, project-specific versus cumulative effects, as well as providing qualitative statements of impact. Baseline information (usually included as an appendix) is normally comprised of an exhaustive list of traditional resources and uses, and a description of study areas and traditional territorial boundaries.

The collection of traditional environmental knowledge for impact assessments has undergone a similar, though more recent, evolution. Until a few years ago, traditional *environmental* knowledge was not collected at all for impact assessments, or if it was, it was collected 'incidentally', by interested field crew members lucky enough to have Aboriginal 'assistants', or by facilitators conducting traditional land use work who happened to be astute enough to recognize the value of what Aboriginal participants were saying about trends in wildlife populations, climate change or the disappearance of particular plant species. Gradually, component leads and impact assessment practitioners, through their own research and experiences, began to realize the value of traditional

environmental knowledge. This was compounded by the experience of Aboriginal communities themselves, who often felt themselves and their knowledge slighted or ignored by developers and regulators. Today, although not all parties are 'converted', assessment scientists and practitioners expect and want to be able to collect and make use of traditional environmental knowledge, and it is a standard requirement in project terms of reference.

In the last couple of years there have been some exciting developments in the collection, use and application of traditional knowledge in impact assessments. In Alberta, for example, university research conducted with an Aboriginal group in the Athabasca oil sands on culturally significant ecosystems (McKillop 2002) provided a promising tool for the analysis of impacts to traditional use in the region. Unfortunately, much more research must be done before the same technique can be applied to traditional use in other regions, or for other Aboriginal groups. (Other approaches may be taken to gain a sense of cultural significance, but they do not normally permit the same degree of quantitative analysis as McKillop's model.)

Some recent assessments have included traditional knowledge 'programs' as part of the traditional environmental knowledge and land use work (Ekwan Pipeline Project, Primrose East Environmental Impact Assessment). These programs normally involve traditional scientists and/or Elders participating in and working with western scientists throughout the biophysical and archaeological field surveys. Facilitators experienced in the collection of traditional knowledge, cross-cultural exchange and impact assessment practice, accompany field crews to assist with the collection of relevant information, and to help generate meaningful dialogue.

4.2 Future Development and Trends

One of the directions that assessments can take to address some of the aforementioned issues is to place greater emphasis on the participation and training of Aboriginal participants. Impact assessment is a complex process, and many people working in the field today do not understand all of its intricacies. How then can Aboriginal peoples who are only seeing the process from the 'outside' understand and contribute meaningfully to impact assessments?

Currently, most traditional knowledge studies are conducted by consultants, hired by the proponent, who act as facilitators to Aboriginal participants. These facilitators, often 'outsiders' to the community, conduct interviews and write reports *on behalf of* Aboriginal participants, applying their experience and understanding of impact assessment to the traditional knowledge collected. This consultant-based model can be modified to take the form of a more community-based model. In a community-based assessment, which borrows heavily from the participatory action research approach, community members are trained on impact assessment process and interview techniques (if not already experienced), and have input into every facet of the assessment (e.g., scoping, background research, interviewing, report writing, client interface). In this model, the 'outside' consultant acts as a facilitator to the community facilitators (as opposed to the participants), offering guidance as needed on impact assessment process, report writing and assessment techniques. This approach was used for the traditional knowledge study for Devon Canada Corporation's recent assessment (2004) of a Beaufort Sea Exploration Drilling Program.

If traditional knowledge is going to be effectively used in current assessment practice, there clearly needs to be greater involvement and understanding of local Aboriginal

peoples of the limitations, scope and intent of impact assessment. Aboriginal communities could be offered the option of selecting the consultants they want to work with to conduct the traditional knowledge study, and could instruct and direct these consultants as to how they want information to be collected and used (FNEATWG 2005). In the same manner as 'proponent consultants', these consultants would have to ensure that the information presented met regulatory requirements, information needs and schedule. (There are examples in British Columbia (e.g., Cayoosh Ski Resort) where Aboriginal groups have hired consultants to conduct the cultural and socio-economic studies, and review and comment on other aspects of the assessment (FNEATWG 2005).) Impact assessment training workshops could be offered in Aboriginal communities that are to take part in an assessment. These workshops could be modeled after the current training workshops offered by the Canadian Environmental Assessment Agency, with an emphasis on those aspects of assessment practice that are of most interest and concern to Aboriginal peoples.

Beyond this (or perhaps in addition to) might be a process in which Aboriginal groups conduct independent assessments that approach impact assessment from their point of view. Such an approach may not conform to current assessment practices or paradigms, but it would perhaps more accurately provide "full and equal consideration" of traditional knowledge. (Some forms of this type of approach already exist. The Aboriginal groups who participated in Voisey's Bay impact assessment both decided to collect and present their own traditional knowledge. Both groups contributed to the scoping and panel review for the project, and worked with independent reviewers who submitted statements on the adequacy of the impact assessment (FNEATWG 2005).) The challenge on all sides is to provide defensible information that enable RAs to make an informed decision with respect to the proposed project. Some assessment practitioners question whether traditional knowledge can ever be given its full due within existing frameworks. It may be some time before Aboriginal communities gain the capacity and understanding to conduct independent assessments, but it may also be the best way to address their concerns about the inadequacies of the current assessment process.

4.3 Direction of Guide – Volume 2

The literature review indicates there is a need to provide Aboriginal perspectives regarding the environment and their relationships to it in order to effectively assess project impacts. In addition, the review of traditional knowledge studies to date has indicated that standardized approaches are required for the following:

- parameters and scope of work
- acceptable procedures and assessment
- Aboriginal participation
- culturally appropriate classifications and perspectives

Volume 2 of the Traditional Knowledge Guide addresses some of these deficiencies. In addition, it provides direction on 'how to' address the following:

- cultural and historical context of Aboriginal occupation and use
- synthesis of approaches (consultant-based and community-based models)
- suggestions for dealing with the challenges presented by regulatory deadlines and proponent schedules

- tools and approaches to 'objectively' assess socio-cultural impacts relating to traditional use patterns
- method for collecting, using and applying traditional knowledge (both traditional environmental knowledge and land use information) in an impact assessment context
- assessment of physical impacts (traditional environmental knowledge specifically)
- assessment of culturally-related impacts (traditional land use specifically)
- presentation of mitigation measures in the context of cross-cultural perspectives

Appendix A Annotated Bibliography

A.1 Policy and Legislation

A.1.1 Northern – Policy and Legislation

NWT CEAM Steering Committee (2004). A Blueprint for Implementing the Cumulative Effects Assessment and Management (CEAM) Strategy and Framework. Revised July 2004. Available at: http://www.ceamf.ca. Accessed: 21 March 2005.

The Cumulative Effects Assessment and Management (CEAM) Strategy and Framework is a collaborative effort of a variety of stakeholders to improve environmental management and stewardship in Canada's Northwest Territories. In July of 2004, the CEAM Steering Committee published a revised version of their blueprint for implementing the CEAM strategy and framework. This blueprint document explains that all components of the CEAM framework consider: traditional knowledge and western science, community and organizational capacity building, a broad definition of environment (social, cultural, economic, biological and physical aspects), adaptive management, and the precautionary principle. Traditional knowledge is recognized as one of the gaps and challenges that need to be addressed. Traditional knowledge is also considered one of the elements essential for the implementation of the CEAM Strategy and Framework. The importance of community-based approaches is also stressed.

Council of Yukon First Nations (n.d.). Understanding the Umbrella Final Agreement. Available at: http://www.cyfn.ca. Accessed: 17 January 2005.

This document summarizes the main aspects of the Umbrella Final Agreement. Chapter 12 of the Agreement sets out the principles and assessment bodies involved in the Development Assessment Process (DAP).

Environmental Impact Review Board. (2004). *Environmental Impact Review Board Operating Procedures*. February 5th, 2004. Inuvik, NWT.

The purpose of these Operating Procedures is to provide guidance to developers, responsible authorities and the public regarding the rules of procedure of the EIRB when a development proposal is referred to it for public review. They are not intended to be a legal interpretation of the IFA. The EIRB procedures require a proponent to include the result of consultations with "communities most likely to be affected" and identify and describe "those elements of the communities and environment likely to be affected by the proposed development (p. 12)."

Environmental Impact Review Board. (1994). Guidelines for Impact Assessment Methods to be Used Before the Environmental Impact Review Board. March 1994. Inuvik, NWT.

These guidelines were prepared to "ensure that proponents…use appropriate Impact Assessment Methodologies for evaluating the potential environmental and social effects of their projects. The Board recognizes the need for flexibility and offers these guidelines to provide the elements that are "essential".

Environmental Impact Screening Committee. (1999). *Environmental Impact Screening Committee Operating Guidelines and Procedures*. Inuvik, NWT: Environmental Impact Screening Committee. Inuvik, NWT.

This document provides information on the structure, procedures and requirements of the Environmental Impact Screening Committee (EISC) that was established under the authority of the Inuvialuit Final Agreement to carry out preliminary environmental screening of developments

in the Inuvialuit Settlement Region. "The EISC has the legal obligation to screen all proposed developments inside the ISR which may negatively impact the environment and/or Inuvialuit wildlife harvesting (p. 4)."

Frayne, T. (1997). *An Examination of the Development Assessment Process, Yukon*. Thesis submitted for the Degree of Master of Arts, Faculty of Graduate Studies, University of Guelph, ON.

This thesis determines the barriers to applying the Yukon Development Assessment Process, an impact assessment policy, under the Comprehensive Land Claim Umbrella Final Agreement, which demands the participation of Yukon First Nations in environmental assessments and indirectly requires the use of their knowledge. Based on the results of her study, Frayne suggests that the incorporation of traditional knowledge and the paucity of guidelines regarding its use is a prominent issue. She examines barriers and benefits to the incorporation of traditional knowledge in the Development Assessment Process and illustrates the current methods used to collect and incorporate traditional knowledge.

Government of Canada (1984). The Western Arctic Claim: the Inuvialuit Final Agreement. Indian and Northern Affairs. Available at: http://www.ainc-inac.gc.ca/pr/agr/inu/wesar_e.pdf. Accessed: 7 January 2005.

This copy includes both Bill C-49 (Western Arctic (Inuvialuit) Claims Settlement Act) and amendment Bill C-102. Section 11, under this enactment, requires the screening of developments that are likely to have a negative impact on the environment or on wildlife harvesting (dealt with specifically in Section 13) within the Inuvialuit Settlement Region. This act established the Environmental Impact Screening Committee and the Environmental Impact Review Board, co-management agencies responsible for environmental screening and review.

Government of Canada (1998). Mackenzie Valley Resource Management Act, c. 25. Available at: http://laws.justice.gc.ca. Accessed: 7 January 2005.

This enactment created an integrated co-management regime for land and waters in the Mackenzie Valley between the Federal Government, the Gwichi'in, the Sahtu Dene and the Métis. The act provides for the making of regulations governing land use, developments that are to be included or excluded from environmental impact assessment, and cumulative impact monitoring and auditing. Stipulations regarding traditional knowledge are given in Part 6 of the Act, which deals with environmental monitoring and auditing. Specifically, Section 146 states that traditional knowledge shall be included for monitoring cumulative impacts in the Mackenzie Valley. Under Section 150, regulations may be created with respect to the collection and analysis of traditional knowledge for the purposes of Section 146.

Government of Canada (2003). Yukon Environmental and Socioeconomic Assessment Act, c.7. Available at: http://www.canlii.org. Accessed: 11 January 2004.

This development assessment legislation is a requirement of the Yukon First Nation Final Agreements stipulations for a Development Assessment Process [DAP] and was developed collaboratively by the Federal Government, the Yukon Government and First Nations. This Act guarantees opportunities for the participation of Yukon First Nations in the assessment process both on the Board and in consultation with proponents. The need to protect the special rights of Yukon Indian Persons including cultures, traditions, health, lifestyles and relationships to the wilderness environment is recognized in 42(1)(g). With regards to traditional knowledge, Section 39 states that a designated office (the executive committee or a panel of the Board) shall give full and fair consideration to scientific information, traditional knowledge and other information provided to it or obtained by it under this Act.

Government of Canada, Council of Yukon Indians & the Government of Yukon (1993). Yukon First Nations Umbrella Final Agreement. Available at: http://cms.cyfn.ca. Accessed: 11 January 2004.

The Umbrella Final Agreement (UFA) was reached in 1988 and finalized in 1990. It is a political agreement (not a legal document) made between the Canadian (Federal) Government, the Yukon Government and the Council for Yukon Indians. It represents the overall agreement of the Yukon Land Claims package and provides a framework for each of the 14 Yukon First Nations to conclude their final claims settlement agreements. Chapter 12 refers to the requirements for a Development Assessment Process [DAP], the legislation for which has now been enacted under the Yukon Environmental and Socioeconomic Assessment Act. The objectives of DAP are to guarantee the participation of Yukon Indian People in the assessment, the inclusion of their knowledge, and to recognize and protect their special rights, including their relationship to the Yukon wilderness.

Government of the Northwest Territories. (1993). *Traditional Knowledge Policy Statement,* Policy No. 52.06. Yellowknife, NWT.

This policy states that, the Government of the Northwest Territories recognizes that the Aboriginal peoples of the Northwest Territories have acquired a vast store of traditional knowledge through their experience of centuries of living in close harmony with the land. The Government recognizes their information about the natural environment and its resources, the use of natural resources, and the relationship of people to the land and to each other and will incorporate traditional knowledge into Government decisions where appropriate.

Government of the Northwest Territories. (2001). *Traditional Knowledge Policy Statement.* Yellowknife, NWT: Priorities and Planning Secretariat, Department of Executive, Government of the Northwest Territories.

According to this policy statement, the Government of the Northwest Territories recognizes that Aboriginal traditional knowledge is a valid and essential source of information about the natural environment and its resources and will incorporate traditional knowledge into Government decisions and actions when deemed appropriate.

Mackenzie Valley Environmental Impact Review Board (MVEIRB). (2005). Guidelines for Incorporating Traditional Knowledge in Environmental Impact Assessments. July 2005. Available at: http://www.mveirb.nt.ca. Accessed: 22 August 2005.

This is the first traditional knowledge guidelines document related to environmental impact assessment to be issued in Canada. It provides advice on how traditional knowledge should be incorporated into the Review Board's environmental impact assessment process. There are three elements of traditional knowledge that are considered important for the process: 1) knowledge about the environment, 2) knowledge about use and management of the environment, and 3) values about the environment.

The Guidelines state that traditional knowledge is required in the NWT impact assessment process because of requirements set by the land claims agreements. Incorporating traditional knowledge provides a more complete knowledge and understanding of the environment, of the potential effects of a proposed development, and of the significance of those effects. It is critical to have traditional knowledge in the early stages of the process because it can help identify scoping issues. Traditional knowledge shared by the community may either be included in the Developer's Assessment Report (DAR), or presented to the Review Board during the process of the EIA. Proponents can negotiate agreements with communities for them to conduct their own studies which can be used in the DAR or presented at hearings. Traditional knowledge is proprietary and should be treated as such. The principle of informed consent always applies.

Mackenzie Valley Environmental Impact Review Board. (2004). Environmental Impact Assessment Guidelines. March 2004. Yellowknife, NWT.

Many of the recommendations put forward in the MVEIRB's draft traditional knowledge guidelines in November of 2004 are represented in these guidelines. It is suggested that proponents engage stakeholders "early in the planning stage" (p. 10) and to include traditional knowledge in the formulation of their impact predictions. The EIA guidelines state that the MVEIRB's issue scoping will include consideration of "social, economic and cultural issues in addition to ecological issues" (p.28). During Technical Review traditional knowledge holders may present information to the Review Board, or expert Review Panel members may be appointed when "specific traditional knowledge is required" (p. 39).

Mackenzie Valley Environmental Impact Review Board. (2001). *Generic Terms of Reference for the Environmental Assessment of Oil and Gas Developments in the Mackenzie Valley.* Yellowknife, NWT.

These generic terms of reference were produced to assist oil and gas proponents in determining research focus for creating environmentally sound and sustainable developments and preparing an environmental assessment report. These generic terms of reference are intended to address key information and assessment areas, including traditional knowledge. It is suggested that the proponent must indicate that they have undertaken and/or accessed traditional knowledge studies in the proposed development area, and provide evidence that traditional knowledge was used and considered in the impact assessment.

Reed, M. (1990). *Environmental Assessment and Aboriginal Claims: Implementation of the Inuvialuit Final Agreement*. Ottawa, ON: Canadian Environmental Assessment Research Council.

This paper explores the application of environmental impact screening procedures in the Northwest Territories. A historic review of government development policy in the North shows that native people have been excluded from direct involvement in resource and development decision-making. The report examines the provisions for joint environmental impact screening and review established through the Inuvialuit Final Agreement.

Wagner, Gary W. 1992. *Involving Aboriginal Populations in the Assessment of the Environmental and Social Impacts of Development in Northern Canada: The Inuvialuit Final Agreement.* July 1992. (Available at: http://www.jointsecretariat.ca.) Inuvik, NWT.

The IFA established a unique structure to deal with resource management and environmental issues that incorporates both government and Inuvialuit views. The Inuvialuit Game Council, the Inuvialuit Regional Council, and five cooperative management agencies were formed to provide the Inuvialuit with a tangible way to participate in government decision-making. Of the five management agencies, two were formed to deal specificially with environmental impact review: the Environmental Impact Review Board and the Environmental Impact Screening Committee. Two provisions of this impact and review process make it unique. The first is that, in the case of "inconsistency or conflict", the Settlement Legislations "shall prevail". The second is that no licence or approval can be issued without satisifying the requirements of the Inuvialuit process. This means that, "permission to proceed with any aspect of a proposed development must wait until the Inuvialuit have exercised their right to equal and meaningful participation in development impact assessment (p. 6)."

A.1.2 Canadian – Policy and Legislation

Campbell, Karen. (2002). *Strengthening Bill C-19, An Act to Amend the Canadian Environmental Assessment Act*. Submission to the Committee on Environment and Sustainable Development. February 2002. Vancouver, B.C.

The author submitted this report to Committee on Environment and Sustainable Development during the five-year review of the CEA Act as Staff Counsel for the West Coast Environmental Law Association. This association is a non-profit society that provides legal services for the protection of the environment. The submission includes comments on various clauses of the CEA Act, including the consideration of traditional knowledge and public participation.

Canadian Environmental Assessment Agency (CEAA). (2004). Considering Aboriginal traditional knowledge in environmental assessments conducted under the Canadian Environmental Assessment Act - Interim Principles. Available at: http://www.ceaa-acee.gc.ca. Accessed: 13 December 2004.

This principle document provides a general framework for considering Aboriginal traditional knowledge in environmental assessment and was written specifically for impact assessment practitioners. The introduction discusses the policy on Aboriginal traditional knowledge in Canadian environmental assessment, what Aboriginal traditional knowledge is and when it can be considered in an environmental assessment. Six general guidelines are presented with respect to the use of Aboriginal traditional knowledge in environmental assessments conducted under the Canadian Environmental Assessment Act.

Government of Canada. (1992). *Canadian Environmental Assessment Act, 1992, c. 37.*

The Canadian Environmental Assessment Act (CEAA) and its regulations are the legislative basis for the federal practice of environmental assessment in Canada. The purpose is to ensure that the potential environmental effects of a proposed development are considered in the project's planning stages. Under Section 2(1) of the CEAA, the definition of environmental effect refers to changes that the project may cause to the environment on the lands and resources currently used for traditional purposes by Aboriginal persons. Moreover, with regards to Aboriginal peoples, one of the purposes of the Canadian Environmental Assessment Act is to promote communication and cooperation between responsible authorities and Aboriginal peoples with respect to the environmental assessment process. With regards to traditional ecological knowledge, Section 16.1 of the amended Canadian Environmental Assessment Act (CEAA) gives responsible authorities the opportunity to consider Aboriginal traditional knowledge in an environmental assessment. Community knowledge and Aboriginal traditional knowledge may be considered by conducting an environmental assessment.

Government of Canada (2002). Bill C-9: An Act to Amend the Canadian Environmental Assessment Act, 1992, c. 37. Available at: http://www.ceaa-acee.gc.ca. Accessed: 17 January 2005.

As a result of the Canadian Environmental Assessment Act (CEAA) Five Year Review, Bill C-9 was enacted to amend CEAA. The renewed legislation is meant to provide for more meaningful public participation and greater certainty and efficiency in the environmental assessment process.

Government of Canada (2003). *Sustainable Development and Environmental Assessment: Beyond Bill C-9, Government Response to the Report of the House of Commons Standing Committee on Environment and Sustainable Development, Five Year Review of Canadian Environmental Assessment Act*. Ottawa, ON: Government of Canada.

This discussion paper provides background information on the Canadian Environmental Assessment Act to stimulate public discussion as part of the public consultation portion of the Five Year Review of the Act. It is noted that one of the most challenging issues is the meaningful

involvement of Aboriginal people in the decision-making process. The review raised the issue of the appropriate use of traditional ecological knowledge in order to receive information that could contribute to the design of a traditional ecological knowledge policy.

National Energy Board (2004). Filing Manual. Available at: http://www.neb-one.gc.ca/Acts Regulations/NEBAct/FilingManual. Accessed: 17 June 2005.

This manual has been developed to provide direction regarding the information the Board would typically expect to see addressed in regulatory filings. It is designed to:

- assist NEB-regulated companies to identify the instances where a filing is necessary, pursuant to the NEB Act and NEB regulations
- outline the Board's responsibilities pursuant to the *Canadian Environmental Assessment Act* (CEA Act)
- outline the filings needed for most applications within the jurisdiction of the NEB
- provide guidance as to the type of information the Board would typically need to make a decision

Consultation with Aboriginal peoples and the inclusion of traditional knowledge is discussed in Section 3.3.3 Implementing a Consultation Program and Guide A.2 Environmental and Socio-economic Assessment.

Supreme Court of Canada (2004a). Haida Nation v. British Columbia (Minister of Forests), SCC 73. Available at: http://www.canlii.org. Accessed: 7 January 2005.

The Haida Nation challenged the issuance of a timber harvesting license from the Province of B.C. to Weyerhaeuser. The basis of the challenge was that the Aboriginal title of the Haida Nation had not been extinguished on Haida Gwaii, and thus the license could not be issued over their objections. Although the Haida's petition was dismissed, the B.C. Court of Appeal held that the Province and Weyerhaeuser both had a duty to consult with and accommodate the Haida with respect to harvesting timber. The Province and Weyerhaeuser appealed to the Supreme Court of Canada, which denied the Province's appeal and allowed Weyerhaeuser's. This Supreme Court Decision confirms that the provincial governmental has the duty to consult with and accommodate the interests of First Nations and will have implications for the participation of First Nations in environmental assessment.

Supreme Court of Canada (2004a). Taku River Tlingit First Nation v. British Columbia (Project Assessment Director), SCC 74. Available at: http://www.canlii.org. Accessed: 7 January 2005.

This Supreme Court Decision affirms Government's duty to consult with First Nations about the use of land, even where it involves unproven land claims. Although the Supreme Court ruled in favor of the development proponent, they also ruled that governments must seek First Nations input and consider concerns about projects that could infringe on land claims. This duty, however, does not extend to project proponents. Although this decision ensures that First Nation's claims must be considered, it does not allow them to veto a project on lands currently under claim. However, this decision will have implications for the inclusion and participation of First Nation's in environmental assessments.

Supreme Court of Canada. (1997). *Delgamuukw v. British Columbia.*

This case was brought forward by the Wet'suwet'en people and represented a claim for ownership and jurisdiction over their traditional territory. The Supreme Court could not rule on all the issues brought forward, but did make some statements in its decision regarding the

admissibility of oral history as evidence, and the nature, test for proving, infringement and extinguishment of Aboriginal title, that had broad implications.

Supreme Court of Canada. (1990). *Ronald Edward Sparrow v. Her Majesty the Queen*.

Mr. Sparrow was charged with violating the Fisheries Act. The Supreme Court overturned the conviction of the lower courts, stating that Aboriginal rights are not extinguished by the exercise of regulations under the Fisheries Act. The court felt that a generous and liberal interpretation of Section 35(1) of the Canadian Constitution must be applied when considering Aboriginal rights. Section 35 recognizes and affirms "the existing Aboriginal and treaty rights of the Aboriginal peoples of Canada".

A.1.3 International – Policy and Legislation

Arctic Environmental Protection Strategy. (1997). *Guidelines for Environmental Impact Assessment (EIA) in the Arctic*. Helsinki, Finland: Finnish Ministry of the Environment.

The Arctic Environmental Protection Strategy was adopted by Canada, Denmark/Greenland, Finland, Iceland, Norway, Russia, Sweden and the United States through a Ministerial Declaration in 1991. These guidelines for impact assessment formulated under the strategy explore ways of dealing with cumulative impacts, trans-boundary issues, the participation of indigenous people, and the use of traditional knowledge. They apply to all parties involved in environmental assessments for development activities in the northern circumpolar areas. There is a short section on the use of traditional knowledge in Arctic environmental impact assessments.

Convention on Biological Diversity (2001). Article 8(j): Traditional Knowledge, Innovations and Practices. Available at: http://www.biodiv.org/programmes/socio-eco/traditional. Accessed: 6 June 2002.

This document provides information on international directions in the implementation of Article 8(j) of the Convention on Biological Diversity. These include national measures, the Convention Secretariat, and other international initiatives.

United Nations Conference on Environment & Development. (1992). *Agenda 21*. Conches, Switzerland : United Nations Conference on Environment & Development.

Agenda 21 resulted from the 1992 Earth Summit in Rio de Janeiro and it reflects a global consensus and international political commitment to cooperate on integrated developmental and environmental objectives. Chapter 26 of this document recognizes that indigenous peoples have an integral role in environmental management and development because of their traditional knowledge and practices. Objective 26.3.a.iii. calls for the recognition of indigenous people's values, traditional knowledge and resource management practices within the context of promoting environmentally sound sustainable development. Furthermore, Objective 26.3.c. calls for the involvement of indigenous communities in resource management, conservation, and other relevant programs established to support and review development strategies. Moreover, Objective 26.6.a. states that governments should strengthen national arrangements to consult with indigenous peoples and their communities for the purposes of reflecting their needs and incorporating their values and traditional knowledge in national policies and programs in resource management, conservation and other development programs.

A.2 Impact Assessments

A.2.1 Northern – Impact Assessments

AGA Consulting Group. (2001). *Traditional Knowledge Collection Protocols*. Consultant's report prepared for the Alaska Gas Producers Pipeline Feasibility Study, Calgary, AB.

These protocols were prepared as part of a feasibility study for a northern pipeline conducted for the Alaska Gas Producers. They provide sample consent forms, suggested protocols for working with communities, summary of regulatory context and requirements for collecting traditional knowledge, and categories of traditional knowledge that may be collected and used in impact assessments.

Berger, T. (Mr. Justice). (1977). *Northern Frontier, Northern Homeland: The Report of the Mackenzie Valley Pipeline Inquiry, Volume One*. Ottawa, ON: Minister of Supply and Services Canada.

The Mackenzie Valley Pipeline Inquiry resulted from the request for rights-of-way to construct and operate a gas pipeline in the Mackenzie Valley. Mr. Justice Thomas Berger was charged with leading the inquiry that involved hearings in all the communities in the Mackenzie Valley and the western Arctic, and resulted in a 20-year land claim process for northern peoples. Carried out before Canada had a formal impact assessment process, many of the recommendations and comments made in this report are still relevant to oil and gas developers today.

Broken Hill Properties/Diamet. (1996). *NWT Diamonds Project: Environmental Impact Statement Volume 1 (Yellowknife) NWT Diamonds Project*. Vancouver, BC: Broken Hill Properties.

This environmental assessment was conducted for the first open pit diamond mine in the Northwest Territories. Originally referred to as the 'BHP Diamond Project' it is now called the 'Ekati Mine Project'. This assessment was criticized for its limited biophysical database, speedy process, and inadequate impact analysis. Although traditional ecological knowledge was to be considered in the preparation of the environmental impact statement, the impact assessment process was too rushed to allow for its documentation and incorporation. It was not until after the project was approved that traditional ecological knowledge studies commenced.

Canadian Environmental Assessment Agency (1999). Diavik Diamonds Project Comprehensive Study Report. Available at: http://www.diavik.ca/PDF/federalcsrreport.pdf. Accessed: 1 February 2005.

Diavik collected traditional knowledge for incorporation into the EIA through funding traditional knowledge studies and assembling information from elders and other community members that arose in consultation meetings. Diavik sought to incorporate traditional knowledge into project design, the Environmental Management System, mitigation and monitoring programs. The concerns and comments raised by the various Aboriginal groups are presented. The Responsible Authorities concluded that traditional knowledge had been adequately addressed in the comprehensive study process and that follow-up activities would ensure that traditional knowledge was involved in monitoring and adaptive management.

De Beers Canada Mining Ltd. (2004). *Environmental Assessment of De Beers Canada Mining Inc.'s Snap Lake Diamond Project.* Yellowknife, NWT: De Beers Canada Mining Ltd.

This is a recent example of an environmental assessment conducted in the Northwest Territories under the jurisdiction of the Mackenzie Valley Impact Review Board. This assessment incorporated an extensive public consultation program as part of the project planning and assessment process. Traditional knowledge reports were produced by the First Nation(s) involved (West Kitikmeot Slave Study).

Department of Indian and Northern Affairs Canada, Department of Fisheries and Oceans, & Natural Resources Canada (1998). Environmental Assessment Guidelines for the Completion of a Comprehensive Study of Proposed Diavik Diamonds Project. Available at: http://www.carc.org/rndtable/official.htm. Accessed: 5 February 2005.

The guidelines directed Diavik to fully consider traditional knowledge where appropriate for assessing project effects. Furthermore, traditional knowledge is expected to be important in scoping valued ecosystem components (VECs), baseline descriptions, impact predictions, development of mitigation, and significance evaluations. Diavik was to make a reasonable effort to collect and facilitate the collection of traditional knowledge for integration into the environmental assessment report in collaboration with Aboriginal communities and organizations. No specific methodologies are provided.

Devon Canada Corporation. (2004). *Comprehensive Study Report: Devon Beaufort Sea Exploration Drilling Program*. Submitted to the National Energy Board by Devon Canada Corporation, Calgary, AB.

This comprehensive report summarizes the potential biophysical and socio-economic effects of Devon Canada Corporation's proposed Beaufort Sea Exploration Drilling Program. The report outlines Devon's phased public engagement and consultation approach utilized in the progressive planning and assessment of the drilling program. This approach involved traditional knowledge studies as part of the impact assessment process. The consultation activities identified a number of key concerns related to the drilling program and resulted in the identification of valued ecosystem and social components to be addressed during the impact assessment.

Golder Associates Ltd. (2003). Report on Inuit Qaujimajatuqangit Literature Review, Gap Analysis and Workshop Results Related to the Doris North Project Hope Bay Belt, Nunavut. Consultant's report prepared for Miramar Hope Bay Limited, Vancouver, BC. Available at: www.ainc-inac.gc.ca. Accessed: 1 February 2005.

This traditional knowledge study was commissioned for the Doris North Project in Nunavut, subsequent to the draft environmental impact statement (EIS) submitted by Miramar Mining Corporation. A literature review, gap analysis, workshop, interviews, and traditional place names study were conducted. Definitions for Inuit Qaujimajatuqangit (IQ), or Inuit traditional knowledge, are provided. The relevance of IQ for sections of the EIS (e.g. noise, cumulative effects, air and water quality, hydrology, archaeology), baseline information, climate change, and valued ecosystem components are discussed.

Green, N. & Binder, R. (1995). Environmental Impact Assessment under the Western Arctic (Inuvialuit) Land Claim. In J. Bissonette & P. Krausman (Eds.), *Integrating People and Wildlife for a Sustainable Future - Proceedings of the First International Wildlife Management Congress* (pp. 343-345). Bethesda, MD: The Wildlife Society.

This paper describes how the environmental assessment process works in the Inuvialuit Settlement Region. Both the Environmental Impact Screening Committee and the Environmental Impact Review Board are described. The authors state that the process has made the application of Inuvialuit traditional knowledge an important part of the environmental assessment process.

Joint Secretariat and Canadian Environmental Assessment Agency. (2003). *Draft Terms of Reference for the Environmental Impact Statement: Mackenzie Gas Project*. October 23, 2003.

These draft terms of reference were produced by the Joint Secretariat of the Inuvialuit Renewable Resources Committees and Canada's federal assessment agency for a proposed gas pipeline through the Mackenzie River Valley. They state that traditional knowledge is "recognized as an important part of project planning and EIA processes" and that it "in combination with other

information sources, is valuable in achieving a better understanding of potential impacts of projects" (p. 5). Traditional knowledge may contribute to baseline information, understanding of traditional land use, project design, issue identification, impact evaluation, significance determination, mitigation and monitoring.

Kavik-AXYS. (2002). *Research Gaps Associated with Exploration and Development for Natural Gas in the Mackenzie Delta*. Consultant's report prepared for the Environmental Studies Research Fund, Inuvik, NWT.

A quote from Mr. Billy Day, a well-known and well-respected Inuvialuit elder, was used in this report. Mr. Day actively works to ensure the protection and conservation of traditional knowledge. He works with oil and gas companies and with scientists to help them better understand the value and importance of traditional knowledge.

Kavik-AXYS Inc. (2003). *Environmental Impact Assessment and Traditional Knowledge - KA036 Devon Beaufort Sea Exploration Drilling Program*. Internal training workshop, Calgary, AB, October 30, 2003.

This presentation provides information on the inclusion of traditional ecological knowledge in an environmental impact assessment conducted in the Canadian Arctic. The purpose of the study was to optimize the usefulness of traditional knowledge of the environmental assessment for Devon's proposed Beaufort Sea Exploration Drilling Program. The general impact assessment process is outlined with reference to the process under the Inuvialuit Final Agreement and within the regulatory process of Devon. Examples of how traditional knowledge has been utilized in environmental assessments are presented and guidelines for integrating traditional knowledge in environmental impact assessments are discussed.

Kavik-AXYS Inc. (2004). *Devon Canada Corporation Beaufort Sea Exploration Drilling Program Application - Tuktoyaktuk Traditional Knowledge and Land Use Studies*. Consultant's report prepared for Devon Canada Corporation, Calgary, AB.

This report summarizes findings of the Tuktoyaktuk traditional study conducted as part of Devon Canada's assessment of its proposed Beaufort Offshore Exploration Drilling Program. In it the scope and methods used for the study are described. A large part of the traditional knowledge project was organized and conducted by local Inuvialuit, hired to work on the Devon Program. The results and a summary of key issues are presented and interpreted relative to effects of the proposed program on the traditional use patterns in Tuktoyaktuk.

Kavik-AXYS Inc. (2004). *Devon Canada Corporation Beaufort Sea Exploration Drilling Program Application - Technical Assessment Report.* Consultant's report prepared for Devon Canada Corporation, Calgary, AB.

This Technical Report provides detailed information on assessment methods and results, public consultation, and an assessment of effects in the environmental impact assessment of Devon's proposed offshore exploration drilling program in the Beaufort Sea. To ensure that the knowledge of local people was integrated into the comprehensive study, information on traditional knowledge and resource use was gathered, summarized and provided to the impact assessment team to assist in scoping. The methods used during the traditional knowledge studies are described in detail in Section 18 of this report.

Kavik-AXYS Inc. (2004). *Devon Canada Corporation Beaufort Sea Exploration Drilling Program Application - Aklavik Traditional Knowledge and Land Use Studies.* Consultant's report prepared for Devon Canada Corporation, Calgary, AB.

This report summarizes findings of the Aklavik traditional study conducted as part of Devon Canada's assessment of its proposed Beaufort Offshore Exploration Drilling Program. In it the

scope and methods used for the study are described. A large part of the traditional knowledge project was organized and conducted by local Inuvialuit hired to work on the Devon Program. The results and a summary of key issues are presented and interpreted relative to effects of the proposed program on the traditional land use patterns in Aklavik.

Kavik-AXYS Inc. (2004). *Devon Canada Corporation Beaufort Sea Exploration Drilling Program Application – Inuvik Traditional Knowledge and Land Use Studies*. Consultant's report prepared for Devon Canada Corporation, Calgary, AB.

This report summarizes findings of the Inuvik traditional study conducted as part of Devon Canada's assessment of its proposed Beaufort Offshore Exploration Drilling Program. In it the scope and methods used for the study are described. A large part of the traditional knowledge project was organized and conducted by local Inuvialuit hired to work on the Devon Program. The results and a summary of key issues are presented and interpreted relative to effects of the proposed program on the traditional land use patterns in Inuvik.

Kavik-AXYS Inc., FMA Heritage Resources Consultants Inc., & North/South Consultants Inc. (2003). *Chevron Canada Resources Ellice Drilling Program*. Consultant's report prepared for Chevron, Calgary, AB and submitted to the Environmental Impact Screening Committee, Inuvik, NWT.

This report presents an environmental overview assessment on a proposed drilling program within the Inuvialuit Settlement Region. Traditional land uses were identified through references to Community Conservation Plans. Information gathered during formal community consultations supplemented the environmental overview.

Kavik-AXYS Inc., North/South Consultants Inc., & FMA Heritage Resources Consultants Inc. (2003). *Submission to the Inuvialuit Environmental Impact Screening Committee - Chevron Canada Resources Taktuk 3D Seismic Program*. Consultant's report prepared for Chevron, Calgary, AB and submitted to the Environmental Impact Screening Committee, Inuvik, NWT.

This report presents an environmental overview on a proposed seismic program within the Inuvialuit Settlement Region. Traditional land uses were identified through references to Community Conservation Plans. Information gathered during formal community consultations supplemented the environmental overview.

Kavik-AXYS Inc., North/South Consultants Inc., & FMA Heritage Resources Consultants Inc. (2004). *Chevron Canada Resources Proposed Garry 3D Seismic Program Project Description*. Consultant's report prepared for Chevron, Calgary, AB and submitted to the Environmental Impact Screening Committee, Inuvik, NWT.

This report presents an environmental overview of a proposed seismic program within the Inuvialuit Settlement Region. Issues of concern were identified through community consultation. Traditional land uses were identified through references to Community Conservation Plans. Information gathered during formal community consultations supplemented the environmental overview.

Kotchea, J. & Sawicki, O. (1998). Report on Traditional Knowledge of Natural and Cultural Resources in the Fisherman Lake Area, Liard Range, NWT. In *Ranger Oil's P-66 Pipeline Project*, (Appendix VII). Consultant's report prepared by Golder Associates Ltd. for Ranger Oil, Calgary, AB.

This traditional knowledge report is based on work developed to assess the impact of Ranger Oil's proposed gas pipeline route options. It is a summary of information gathered on traditional knowledge of natural and cultural resources in the Fisherman Lake area of the Liard Range (Franklin Mountains), Northwest Territories. The report lists concerns, provides recommendations, and lists results according to various resources used by Aboriginal groups. Appended to the report is an interview guide and map.

Kotchea, J. & Sawicki, O. (1999). *Report on Traditional Knowledge of Natural and Cultural Resources within the Proposed Pipeline Corridor between Fort Liard, NWT and Maxhamish Lake, BC.* Consultant's report prepared by POZitive Results Geographics Inc., for Paramount Resources Ltd., Calgary, AB.

This report summarizes the information gathered on traditional knowledge of natural and cultural resources in and around a pipeline corridor. The purpose of the study was to assess the impact of the pipeline on an area occupied by the Dene people since time immemorial. The study included traditional knowledge interviews and the methodological protocol for their conduct.

Mackenzie Gas (2004). Environmental Impact Statement for Mackenzie Gas. Available at: http://www.mackenziegasproject.com/theProject/regulatoryProcess/applicationSubmission/Applcationscope/EIS.html. Accessed: 15 December 2004.

The environmental impact statement (EIS) for Mackenzie Gas was developed over three years using a community, issue-focused approach and consists of eight volumes. Volume 1, Section 3 describes the methodological process designed to carry out traditional knowledge studies in such a way that the results could be integrated into the EIS. At the time of submission, traditional knowledge activities were not completed. Although most studies were underway, negotiations with some affected communities had not been completed to determine whether they would undertake a regional or community-specific study. Methods focused on a participatory approach where community or regional agencies would undertake the traditional knowledge studies, involving community participation in traditional knowledge working groups.

Miramar Mining Corporation (2003). Draft Environmental Impact Statement Doris North Project (formerly known as the Doris Hinge Project) Nunavut, Canada. Prepared by AMEC Earth and Environmental, Calgary, AB, for Miramar Mining Corporation, Vancouver, BC. Available at: http://www.ainc-inac.gc.ca. Accessed: 1 February 2005.

This draft environmental impact statement, for a proposed mine in Nunavut, was submitted for a conformity and deficiency review in January 2003. No traditional knowledge study was undertaken at the time of draft submission. The proponent instead intended to submit a copy of the traditional knowledge study commissioned by BHP of the study area. This study was not complete at the time of the draft environmental impact statement. However, the proponent indicated that there was an attempt to incorporate traditional knowledge on valued ecosystem components into the draft environmental impact statement.

Mulvihill, P. & Baker, D. (2001). Ambitious and Restrictive Scoping: Case Studies from Northern Canada. *Environmental Impact Assessment Review*, 21, 363-384.

The theory and practice of scoping in remote intercultural communities is discussed. The general history of environmental assessment in northern Canada is then described and analyzed and key challenges for scoping in northern intercultural settings are identified. Scoping needs to be: 1) adapted to local culture and customs, and 2) receptive to diverse knowledge systems and modes of expression. The Berger Inquiry, Great Whale project, Ekati diamond mine, and Diavik diamond mine are analyzed. Approaches to environmental assessment, especially the scoping phase, are shown to have varied across Northern Canada, included ambitious and innovate cases (e.g., Berger Inquiry) and become more restrictive over time.

National Energy Board. (2002). Scope of the Environmental Assessment and Environmental Impact Screening and Review for the Proposed Devon Canada Corporation Beaufort Sea Exploration Drilling Program. August 23, 2002.

This document provides the scope of the assessment required for Devon's Exploration Drilling Program in the Beaufort Sea. The responsible authorities (includes National Energy Board,

Environment Canada, Fisheries and Oceans Canada and Indian and Northern Affairs Canada), the Canadian Environmental Assessment Agency, and the Inuvialuit Game Council and the Joint Secretariat co-management groups all agreed on this scope. The review of the impact assessment for this project was a coordinated effort between the federal and Inuvialuit processes to avoid duplication. Devon was directed to consider environmental effects as addressed under Section 16(1) of the CEA Act, and to also consider IFA requirements, which call for reference to the Inuvialuit Community Conservation Plans and extensive community consultation. The comprehensive study summary noted that, among other things, the following must be considered:

- In the description of socio-economic environment and physical and cultural heritage:
  - land and resource use
  - social cultural patterns
  - traditional knowledge
- As part of the ecosystems components:
  - Inuvialuit interests (traditional knowledge, hunting and traditional fishing, cultural sites)

Nakashima, D. (1990). *Application of Native Knowledge in EIA: Inuit, Elders and Hudson Bay Oil.* Ottawa, ON: Canadian Environmental Assessment Research Council.

The author states that environmental impact assessment (EIA) practitioners have overlooked traditional knowledge as a valuable source of biophysical baseline information and proposes that EIA in Arctic regions can benefit from Inuit environmental knowledge. He advocates the formal integration of Inuit peoples into the EIA process as environmental experts and assesses this position through the examination of environmental data from three Inuit communities.

Nunavut Impact Review Board (2002). Environmental Assessment Guidelines for the Doris Hinge Project. Available at: http://www.ainc-inac.gc.ca. Accessed: 1 February 2005.

Section 4.4 provides guidelines on the presentation and consideration of traditional knowledge for the proposed Doris Hinge (now known as the Doris North) Project in Nunavut. The guidelines require the proponent to present and justify their definition of traditional knowledge and explain the methodology used for collection. The proponent is further required to discuss how traditional knowledge was treated with regards to the environmental assessment process including baseline data collection, impact prediction, significance assessment, mitigation and monitoring. An explanation of how traditional knowledge is integrated with western-based science is required. Traditional knowledge must be further incorporated into an on-going program of data collection for mitigation and monitoring programs involving procedures for community-based monitoring.

Nunavut Impact Review Board (2003). Environmental Impact Statement (EIS) Guidelines for the Meadowbank Project. Available at: http://www.ainc-inac.gc.ca. Accessed: 1 February 2005.

Section 4.4 provides guidelines on the presentation and consideration of traditional knowledge for the proposed Doris Hinge (now known as the Doris North) Project in Nunavut. The guidelines require the proponent to present and justify their definition of traditional knowledge and explain the methodology used to collect it. The proponent is further required to discuss how traditional knowledge was treated with regards to the environmental assessment process including baseline data collection, impact prediction, significance assessment, mitigation and monitoring. An explanation of how traditional knowledge is integrated with western-based science is required. Traditional knowledge must be further incorporated into an on-going program of data collection for mitigation and monitoring programs involving procedures for community-based monitoring.

Roberts, K. (1995). *Circumpolar Aboriginal People and Co-Management Practice: Current Issues in Co-management and Environmental Assessment, Conference Proceedings, Inuvik, November 20-24, 1995*. Inuvik, NWT: Arctic Institute of North America and Joint Secretariat - Inuvialuit Renewable Resource Committees.

This report summarizes the results of a workshop held to examine the experiences of northern co-management regimes, and current issues in northern co-management and environmental assessment practice. There were four issues discussed with regards to environmental assessment: 1) community involvement, 2) traditional knowledge, 3) trans-boundary issues, and 4) linking environmental assessment to other processes. With regards to traditional knowledge, two themes emerged from the working group discussions - concern about the lack of respect for and abuse of traditional knowledge, and suggestions for improving the use of traditional knowledge in environmental assessments. Traditional knowledge must be treated equally with scientific knowledge and must be included early in the project planning process. Barriers to community involvement were identified and requirements for education and information sharing were discussed.

Ross, W. (2004). The Independent Environmental Watchdog: A Canadian Experiment in EIA Follow-up. In A. Morrison-Saunders & J. Arts (Eds.), *Assessing Impact: Handbook of EIA and SEA Follow-up* (pp. 178-195). London, UK: PB- James & James/Earthscan.

A danger in environmental impact assessment (EIA) is that public involvement is merely about informing rather than true public participation. In an innovative experiment to follow-up monitoring and management for the Ekati diamond mine, the Independent Environmental Monitoring Agency was established to oversee the project and the regulators. This Agency is committed to encouraging the integration of traditional knowledge into the mine's environmental plans. Community involvement is integral to follow-up studies.

Stevenson, M. (1996). Indigenous Knowledge in Environmental Assessment. *Arctic,* 49(3), 278-291.

Stevenson critically examines barriers to the full inclusion of traditional knowledge in environmental impact assessment in the North. He suggests that "indigenous knowledge" - a term encompassing traditional and nontraditional, ecological and non-ecological knowledge - is a more appropriate concept that allows Aboriginal people and the full scope of their knowledge to assume integral roles in environmental impact assessment. The case study of the BHP Diamonds Inc. mine (Ekati) at Lac de Gras in the Northwest Territories of Canada, is presented to illustrate a multi-phased, holistic approach to involving Aboriginal people and their knowledge in environmental impact assessment.

TERA Environmental Consultants (Alta.) Ltd. (1997). *Report on Traditional Knowledge of Natural and Cultural Resources in the Kotaneelee River Area, Liard River Basin, NWT*. Consultant's report prepared by TERA Environmental Consultants (Alta.) Ltd., for Husky Oil Operations Ltd., Calgary, AB.

The purpose of the study was to record traditional knowledge of natural and cultural resources in the vicinity of a proposed mineral lease area. The scope of work consisted of discussions and site reconnaissance with a community representative familiar with the project area. Further meetings were held to review and verify the information.

Tahera Corporation (2003). Jericho Project Traditional Knowledge Use. Toronto, ON: Tahera Corporation. Available at: http://www.ainc-inac.gc.ca. Accessed: February 1, 2005.

A formal, traditional knowledge study was not undertaken for this diamond mining project in Nunavut. Rather, the traditional knowledge component was based on existing traditional knowledge studies and comments from elders. Existing traditional knowledge sources included

the West Kitikmeot Slave Study reports and the Naonayaotit Traditional Knowledge Study Database. Elders' comments were obtained during community consultations and during Jericho project site visits. Management and monitoring of the Jericho site will take into account traditional knowledge of caribou behaviour.

Usher, P. (2000). Traditional Ecological Knowledge in Environmental Assessment and Management. *Arctic,* 53(2), 183-193.

Usher discusses problems with the incorporation of traditional ecological knowledge in environmental assessment and resource management in the North. He outlines the different categories of traditional ecological knowledge and the considerations for each in environmental assessment. Certain procedures are recommended for recording, organizing and presenting traditional ecological knowledge. The Voisey's Bay environmental assessment is presented as an example to illustrate the inclusion of traditional ecological knowledge in environmental assessment.

Voisey's Bay Mine and Mill Environmental Assessment Panel. (1998). Voisey's Bay Mine and Mill Environmental Panel Report. Available at: http://www.ceaaacee.gc.ca. Accessed: 16 December 2004.

In 1997, the federal and provincial governments, the Labrador Inuit Association and the Innu Nation signed a memorandum of understanding to set out how the environmental effects of the Voisey's Bay Mine and Mill Project would be reviewed. A five-person panel held two rounds of public meetings. The Voisey's Bay Nickel Company told the panel that they had several difficulties in incorporating Aboriginal knowledge in its environmental impact statement. The panel drew five conclusions regarding the consideration of Aboriginal traditional knowledge in environmental impact assessment. As a result, the panel recommended that the government of Canada develop a policy on the inclusion of traditional knowledge in environmental assessment.

Wismer, S. (1996). The nasty game: how environmental assessment is failing Aboriginal communities in Canada's North. *Alternatives Journal,* 22(4), 10-18.

This article describes the environmental assessment of the BHP Diamond Mine (Ekati) near Lac de Gras, NWT and how it failed the people whose homelands surround Lac de Gras. In public presentations, Aboriginal people commented on how things like diamond mine developments are not useful to them unless they have "a strong say in the pace, scale and timing of resource development, and in how benefits are distributed" (p. 2). The author suggests that the BHP experience raises serious questions about the state of environmental assessment in Canada.

A.2.2 Canadian – Impact Assessments

AXYS Environmental Consulting Ltd. (1999). *Surmont Commercial Oil Sands Project Environmental Impact Assessment - Traditional Land Use Study*. Consultant's report prepared for Gulf Canada Resources Limited, Calgary, AB.

The purpose of this traditional land use study was to ensure that potential impacts to traditional land use from the Surmont lease could be effectively minimized. Significant sites were identified and mapped and potential mitigation were suggested. The authors note that attempts were made to integrate knowledge from western science and traditional environmental knowledge.

AXYS Environmental Consulting Ltd. (2000). *JACOS Hangingstone SAGD Demonstration Project - Traditional Land Use Study for the Fort McMurray No. 468 First Nation*. Consultant's report prepared for Japan Canada Oil Sands Co. Ltd., on behalf of the Fort McMurray No. 468 First Nation.

The purpose of this traditional land use study was to ensure that potential impacts from the JACOS Hangingstone project could be reduced or effectively mitigated. The traditional environmental and historical knowledge of the Fort McMurray First Nation was documented, significant sites were identified and mapped, and community concerns were identified about the potential cumulative impacts.

AXYS Environmental Consulting Ltd. (2000). *OPTI Canada Long Lake Project - Traditional Land Use Study*. Consultant's report prepared for OPTI Canada Inc., Calgary, AB.

A traditional land use study was undertaken to assess the potential impacts from the Long Lake project to traditional land use. One objective of the study was to present the traditional ecological knowledge gained as a result, in a way that could be incorporated into environmental impact assessments.

AXYS Environmental Consulting Ltd. (2001). *Corridor Pipeline - Traditional Land Use Study for the Fort McMurray First Nation No. 468.* Consultant's report prepared for Corridor Pipeline on behalf of Fort McMurray First Nation No. 468.

The purpose of this traditional land use study was to document traditional land use in the regional study area of the Corridor Pipeline and to make recommendations for impact prevention and mitigation. Interviews with affected First Nation members and trappers were used to collect information on traditional land use. Traditional ecological knowledge (TEK) is discussed and its strongest value is noted as being the ability it offers to compare current and past environmental conditions, addressing the time limitations in scientific studies in environmental impact assessment.

AXYS Environmental Consulting Ltd. (2002). *BlackRock Orion Enhanced Oil Recovery Project Traditional Land Use Study for the Cold Lake First Nations.* Consultant's report prepared for E2 Environmental Alliance.

This report includes information on community history, important cultural sites and the traditional environmental knowledge of the Denesoun'line (Cold Lake First Nations). Methods employed for the traditional land use study are described and include a site visit and interviews.

Alexis First Nation and Alliance Pipeline Limited. (1999) *Traditional Knowledge Study Alexis First Nation - Ecological and Cultural Resources in Proximity to the Mainline and Edson Lateral Pipeline Project.* Prepared for Alliance Pipeline Limited, Calgary, AB.

The objectives of this study were to identify sites of ecological and cultural significance to the Alexis First Nation within the area of a proposed pipeline. The information gathered was at the discretion of the Alexis First Nation representatives. The scope of work consisted of pre-field community consultations and field reconnaissance to locate and document sites of concern.

Berkes, F. (1988). The Intrinsic Difficulty of Predicting Impacts: Lessons from the James Bay Hydro Project. *Environmental Impact Assessment Review,* 8, 201-220.

This article reviews the experience with the James Bay hydroelectric project in northern Quebec to determine the lessons and insights regarding the projection of impacts and the improvement of the process of impact prediction and monitoring. The article focuses on six areas selected on the basis of their importance to the local people (Chisasibi Cree), whose views about impacts differed from those of the government agencies. It was found that the success of impact prediction has been low in Canadian hydroelectric developments. Impacts develop over a period of time depending on decisions made. Moreover, the Environmental Monitoring Program is irrelevant because it does not address problems of social impact and did not involve community consultation in its design. Berkes suggests that involving all affected parties in valued ecosystem

component selection is promising for reducing uncertainty and making sure the impact assessment is relevant.

British Columbia Environmental Assessment Office (1997). Determining the Impact of the Tulsequah Chief Mine Project on the Traditional Land Use of the Taku River Tlingit First Nation. Available at: http://www.eoa.gov.bc.ca. Accessed: November 2001.

This report describes and analyzes the potential effects associated with the proposed Tulsequah Chief Mine Project on the traditional land use of the Taku River Tlingit First Nation. Traditional land use methodology is described, including purpose, significance and history in Canada. Detailed methods are examined with a discussion of their limitations. The methods include: 1) general design, 2) data sources and analysis, 3) household survey, 4) traditional use area mapping, and 5) literature review.

British Columbia First Nation Environmental Assessment Working Group (BCFNEAWG). (2000). Workshop Report for the CEAA Five-Year Review. March 7th, 2000. Prepared by Praxis Pacific and submitted to the Canadian Environmental Assessment Agency. Vancouver, BC. Available at: http://www.acee.gc.ca. Accessed: 10 May 2004.

This workshop report reflects the work of BCFNEAWG during the five-year review of the CEA Act. Recommendations covered a wide variety of topics pertinent to Aboriginal peoples' involvement in impact assessments, and led to the creation of a environmental assessment toolkit for First Nations (included in Guidelines: Canadian). Issues and recommendations from the workshops included: consultation, traditional knowledge, definitions, capacity, jurisdiction, among others. Though this working group report came from British Columbia, many of its recommendations are relevant to Aboriginal people throughout Canada.

Burnaby, N. (2003). Traditional Ecological Knowledge and Environmental Impact Assessment. Undergraduate Honours Project produced for ERS 490, Environment and Resource Studies Department, University of Waterloo, ON. Available at: http://www.fes.uwaterloo.ca/ers/undergraduate_research_information.html. Accessed: 20 December 2004.

This paper uses six case studies to illustrate issues with the way traditional ecological knowledge is used to contribute to environmental impact assessment. Nine fundamental problems that prevent the meaningful contribution of traditional ecological knowledge in environmental assessment were identified and recommendations are made to mitigate these problems.

Doig River First Nation and Alliance Pipeline Limited. (1999). *Traditional Knowledge Study Doig River First Nation: Ecological and Cultural Resources in Proximity to the Boundary Lake Lateral, Alliance Pipeline Project.* Report prepared for the Alliance Pipeline Limited, Calgary, AB.

This cooperative traditional knowledge study focuses on identified sites of ecological and cultural significance to the Doig River First Nation in proximity to the Boundary Lake Lateral Pipeline. The report also proposes mitigative options recommended by the study participants. Methods included: 1) initial consultation to decide on research target areas, and 2) field reconnaissance.

Emery, A. (Lead Facilitator) (2002). Aboriginal Peoples and Traditional Knowledge in Environmental Assessments. Workshop Recommendations. Available at: http://www.ceaa.gc.ca. Accessed: 28 February 2005.

This is the report of a workshop held in March of 2002 in Banff, Alberta entitled "Bridging the Gap: Integrating Traditional Knowledge in Environmental Assessments (EA)". The workshop was held by a group of professionals working in the EA field, and contains recommendations directed at the five-year review of CEAA and EA practice overall. Participants at the workshop included professionals from across southern and northern Canada. Recommendations were signed by all participants.

Participants agreed that the overall problem with the CEA Act is that "the inclusion of traditional knowledge and indigenous peoples is currently handled with very poor effectiveness". They also stated that Aboriginal people should not be dealt with at the same level as other stakeholders; because of the Canadian Constitution they "must be considered before other stakeholders." Several recommendations were put forward by the group: emphasizing the need to include and consult Aboriginal stakeholders in project-specific EAs; that 'best efforts' be made, and proven to be made, to include traditional knowledge, but not 'incorporate' it; that CEAA provide extensive, non-bureaucratic guidelines and common terminology; and that funding and capacity-building be provided for Aboriginal participants.

Fedirchuk, G. (1996). *Cultural Properties Cardinal River Coals Ltd. Cheviot Mine Project*. Consultant's report prepared by Fedirchuk McCullough & Associates Ltd. for Cardinal River Coals Ltd., Hinton, AB.

In keeping with the Terms of Reference for the environmental impact assessment for the proposed Cheviot Mine, a cultural properties study was undertaken with selected First Nations in the region of the development. One of the objectives of the study was to provide the perspective of the First Nations on historical development and relationship to the land in the project area. The author recognized that an accurate historical account is incomplete without the addition of oral history information.

Fedirchuk, G. (1999). *Suncor Energy Inc. Blackstone Pipeline: Mountain Cree Camp Plant Harvesting Concerns*. Consultant's report prepared by Fedirchuk McCullough & Associates Ltd. for Suncor Energy Inc., Calgary, AB

Discussions with Mountain Cree Camp were held regarding concerns about impact to plant harvesting areas from the construction of the Blackstone Pipeline Project. Specific plant harvesting areas of concern were visited and plants were identified and photographed.

Great Whale Public Review Office. (1992). *Guidelines for the Environmental Impact Statement for the Proposed Great Whale River Hydroelectric Project - Technical Notes on the Guidelines and the Environmental Assessment Process*. Montreal, QC: Great Whale Public Review Support Office.

This document describes the scope of the Guidelines that were developed for the environmental impact assessment of the Great Whale Hydroelectric Project in Quebec. The Guidelines required Hydro-Quebec to "characterize Native knowledge with respect to the biophysical and social environment." Moreover, the Guidelines stressed that the description of different environments to be carried out during the assessment must "take into account the knowledge of, and attitudes toward, the environment specific to the Cree and Inuit cultures." The Guidelines were developed and issued after joint public hearings, focusing on the issues to be addressed in the Guidelines, took place in the affected Inuit and Cree communities. The transcribed commentaries from these public consultations were taken into account when drafting the Guidelines.

Golder Associated Ltd. (2001). Volume 3, Part 2, Environmental Impact Assessment. In *Application for the Approval of the Meadow Creek Project*, *Environmental Impact Assessment Report*. Prepared for Petro-Canada and submitted to the Energy and Utilities Board, Calgary, AB.

Section G - Traditional Land Use Assessment, provides information on Traditional Land Use as required by the Terms of Reference for the Meadow Creek Project Environment Impact Assessment (EIA). The purposes of the traditional knowledge and land use component for the Meadow Creek Project EIA did not include the use and incorporation of the information for other studies in the EIA. An assessment of the effects of the project on traditional land use is presented and is based on the documented concerns of traditional land users obtained through community consultations. A cumulative effect assessment of the effects of the Meadow Creek Project

combined with other regional developments was also conducted based on concerns identified by regional traditional land users during consultations and traditional land use studies.

Golder Associates Ltd. (2003). *Traditional Land Use Culturally Significant Ecosystems Analysis Jackpine Mine - Phase 1 Final Report*. Consultant's report submitted to the Fort McKay First Nation on behalf of Shell Canada Limited, Calgary, AB.

This report was prepared in response to requests from the Fort McKay First Nation regarding the Traditional Land Use Component of the Shell Canada Limited Jackpine Mine - Phase 1 Environmental Impact Assessment. A Culturally Significant Ecosystems (CSE) analysis was completed for large game and plants of traditional importance in the regional study area. The methods employed for calculating the CSE are presented and the percent of CSE within the regional study area is determined.

Health Canada (1999). Canadian Handbook on Health Impact Assessment: The Basics. Available at: http://www.hc-sc.gc.ca/hecs-sesc/ehas/publications/canadian_handbook/volume1/toc.htm. Accessed: 15 December 2004.

Section 5: Aboriginal Health and Traditional Knowledge discusses issues relevant to understanding the responsibilities of those conducting environmental assessments to Aboriginal people and the possible roles of Aboriginal people in environmental assessment. Federal legislation and policy is discussed, with regards to environmental assessment on Aboriginal lands including reserves and traditional territories. Traditional knowledge is discussed with regards to health systems and assessment.

Hrychuk, B. (1998). *ANG Gathering & Processing Ltd. South Cutbank Project Aseniwuche Winewak Nation Consultation.* Consultant's report prepared by Fedirchuk McCullough & Associates Ltd. for ANG Gathering & Processing Ltd., Calgary, AB.

The report summarizes the results of consultation with the Aseniwuche Winewak Nation regarding a pipeline project near Grande Cache, Alberta. During a helicopter overflight, the development area was surveyed for traditional land use sites and/or areas of cultural significance. No traditional land use sites were identified to be in potential conflict with the proposed development.

Inkpen, T. (1999). *Healthy People, Healthy World: Preserving Aspects of Traditional Knowledge and Improving its Application to Environmental Assessment*. Thesis/Practicum submitted for the degree of Master of Natural Resource Management, Faculty of Graduate Studies, University of Manitoba, Winnipeg, MB.

This thesis documents the knowledge of bush medicine among the Innu of Labrador, and considers how this and other forms of traditional knowledge may be used in decision-making processes such as environmental impact assessment. The environmental impact assessment process is examined and steps for improving the inclusion of Aboriginal knowledge in the process are discussed. The author participated in the traditional knowledge survey for the Voisey's Bay Nickel Mine Assessment known as the Innu Ecological Knowledge Project, and includes an evaluation of four previous panels that attempted to include traditional knowledge: the Berger Inquiry, the Assessment of Military Flying Activities in Labrador and Quebec, the North Central Project, and the Northwest Territories diamond mine (Ekati) assessment. The strengths and weaknesses of these processes are examined and recommendations for improving the inclusion of the Innu people and their knowledge in future assessments are identified.

Kotchea, J. & Sawicki O. (1998). *Report on Traditional Knowledge of Natural and Cultural Resources in the Maxhamish Lake Area, British Columbia.* Consultant's report prepared by POZitive Results Geographics Inc., for Paramount Resources Limited, Calgary, AB.

This report summarizes information on traditional knowledge of natural and cultural resources in the Maxhamish Lake area of northeastern British Columbia. The purpose of the study was to assess the impact of a pipeline in the Maxhamish Lake area. An interview guideline was developed to provide a consistent interview process.

Labour, S. (2003a). *Ekwan Pipeline Project: Dene Tha' First Nation Field Survey Report*. Consultant's report prepared by FMA Heritage Resources Ltd., for EnCana Ekwan Pipeline Inc., Calgary, AB.

This report presents the results of a field survey of a proposed pipeline development by the Dene Tha' First Nation. The assessment methodology included consultations with the Dene Tha' First Nation and field surveys involving an elder and field technicians from the Dene Tha'. The report results are organized according to: traditional land use, traditional knowledge, and traditional use issues and concerns.

Labour, S. (2003b). *Ekwan Pipeline Project: Fort Nelson' First Nation Field Survey Report.* Calgary, AB: FMA Heritage Resource Consultants Inc.

This report presents the results of a field survey of a proposed pipeline development by Fort Nelson First Nation. The assessment methodology included consultations with the Fort Nelson First Nation and field surveys involving an elder and field technicians from Fort Nelson. The report results are organized according to: traditional land use, traditional knowledge, and traditional use issues and concerns.

Landsong Heritage Consulting Ltd. (2002). *Traditional Land Use Assessment of the Proposed Western Canadian Coal Corp. Wolverine Mine Project*. Consultant's report prepared for Western Canadian Coal Corporation, Vancouver, BC.

The report presents the results of a collaborate traditional land use site assessment undertaken by Kelly Lake First Nations, Kelly Lake Cree Nation, West Moberly First Nations, McLeod Lake Indian Band, and Landsong Heritage Consulting Ltd. of a proposed coal mine development in northern British Columbia. The objective of the study was to collect site-specific traditional land use information. The traditional land use methodology included an archaeological site file search, initial consultations with the Aboriginal communities, and field reconnaissance. Traditional land use sites were considered to fall under nine categories or types. Cultural landscape level concerns were also elicited.

Mailhot, J. (1994). *Traditional Ecological Knowledge: The Diversity of Knowledge Systems and Their Study (2nd ed.)*. Great Whale Environmental Assessment, Background Paper No. 4. Montreal, QC: Great Whale Public Review Support Office.

This book covers the history and definition of traditional ecological knowledge and discusses areas for its practical application. The application of traditional ecological knowledge in environmental impact studies is included. Examples of studies in northern Canada are provided. There is a short section on methodological considerations.

McKillop, J. (1999). *Chevron Canada Resources Gregg Lake Pipeline Project Aseniwuche Winewak Nation Consultation*. Consultant's report prepared by Fedirchuk McCullough & Associates for Chevron Canada Resources, Calgary, AB.

Two overflights of a proposed pipeline project were conducted with representatives of the Aseniwuche Winewak Nation as part of the consultation process, and this report documents the results. The methods section is brief but explains the field reconnaissance process. As a result of the overflights, 19 traditional land use sites were identified by Aseniwuche Winewak elders.

McKillop, J. (1999). *Fort Nelson First Nation Traditional Land Use Consultation - Paramount Resources Ltd. Shiha Energy Transmission Ltd. Pipeline Project, Maxhamish Gas Plant Project,*

Maxhamish Pipeline Project. Consultant's report prepared for Salmo Consulting Inc. on behalf of Paramount Resources Ltd., Calgary, AB.

This traditional land use consultation with the Fort Nelson First Nation was conducted for the purpose of identifying any traditional land use sites which may be in conflict with three proposed oil and gas developments in northern British Columbia. Methods included locating sites relative to the proposed development(s) during an overflight and documenting them with photography and global positioning system (GPS) readings .

McKillop, J. (2000). *Scoping Document, Traditional Land Use Component: Appraisal Phase Environmental Feasibility Assessment for the Northern Gas Pipeline Study - Canadian Segment.* Prepared by FMA Heritage Resource Consultants Inc. for TERA Environmental Consultants (Alta.) Ltd. on behalf of BP Amoco Gas and Power Canada, Calgary, AB.

This is a confidential report prepared for a feasibility study on potential northern pipeline routes. Critical constraints regarding traditional land use in the area are identified.

McKillop, J. (2002). *Toward Culturally Appropriate Consultation: An Approach for Fort McKay First Nation*. Master's Degree Project for the degree of Master of Environmental Design, Faculty of Environmental Design, University of Calgary, Alberta.

McKillop develops a quantitative approach - Culturally Significant Ecosystems (CSE) - for defining patterns of traditional land use according to intensity of use. The CSE approach utilizes kernel home range analysis - an ecological modeling method - in a geographic information mapping system to determine areas of low, moderate and significant traditional land use for a community. The CSE for the Fort McKay First Nation are calculated and mapped and compared to the traditional land use study areas used in two oil sands environmental impact assessments to illustrate how this approach more effectively incorporates community knowledge and concerns into the impact assessment process.

McKillop, J., Glaholt, R., & Barclay, R. (1999). *Traditional Knowledge Study Kelly Lake First Nation - Ecological and Cultural Resources in Proximity to the Boundary Lake Lateral and the Fort St. John Lateral Alliance Pipeline Project.* Consultant's report prepared by Fedirchuk McCullough & Associates Ltd. and TERA Environmental Consultants (Alta.) Ltd. for the Alliance Pipeline Ltd., Calgary, AB.

The objectives of the study were to identify sites of ecological and cultural significance to the Kelly Lake First Nation relative to the proposed Alliance Pipeline Project. Methods consisted of: 1) consultation, 2) helicopter reconnaissance, and 3) ground reconnaissance. The identification of study areas was based on the collective traditional knowledge of the Kelly Lake First Nation participants. This report includes mitigative options recommended by representatives of Kelly Lake First Nation.

McKillop, J. & Lewis, W. (2000). *Cold Lake First Nations Consultation: Traditional Knowledge, Land Use and Occupancy - Imperial Oil Resources Limited Cold Lake Expansion Project Mahkeses Block.* Consultant's report prepared by Fedirchuk McCullough & Associates Ltd., for Imperial Oil Resources Limited, Calgary, AB.

This traditional knowledge, land use and occupancy study was conducted in consultation with the Cold Lake First Nations with regards to a proposed oil and gas development. Methods included interviews and field reconnaissance.

Melton, D. (2003). *Traditional Land Use Update CNRL PAW Project – 2003*. Consultant's report prepared by Golder Associates Ltd., for Canadian Natural Resources Limited, Calgary, AB.

This report presents the results of fieldwork and interviews conducted on revised locations for a proposed oil and gas development that had previously been subject to a traditional land use study.

The fieldwork and interviews were community-driven, although facilitated by Golder on behalf of CNRL.

Meredith, T. (2000). Community Participation in Environmental Information Management: Exploring Tools for Developing an Impact Assessment Preparedness Program. Report prepared for the Research and Development Monograph Series, Canadian Environmental Assessment Agency. Available at: http://www.ceaa-acee.gc.ca. Accessed: 12 December 2004.

The author states that research on better decision making is essential for ensuring better forms of environmental protection. This research is based on two objectives: 1) "to learn to make better use of existing information sources (both scientific and traditional), and 2) to increase the potential for "environmental protection by people most familiar with and affected by local environmental problems." To this end, the research explores ways for improving community-based management of environmental information and improving the local capacity for environmental stewardship. The author suggests that environmental impact assessment provides the greatest opportunity for capacity-building and local environmental stewardship.

Mulvihill, P. (2003). Expanding the Scoping Community. *Environmental Impact Assessment Review,* 23, 39-49.

This article examines the possibility that "scoping community" could be expanded and improved through the use of scenario-based input and communications technology. Mulvihill argues that Canadian environmental assessment (EA) only engages a small community of regular participants (proponents, agencies, researchers, consultants, NGOs). These regular participants are joined on a case-by-case basis by stakeholders who otherwise are not interested or involved in EA. Unlocking the potential of EA requires finding new ways to include input from informal processes surrounding EA, in particular by expanding the scoping community. The Mackenzie Valley Pipeline and the development in the Hudson Bay are two examples discussing how expanding scoping, using scenario techniques, would assist in improving cumulative effects assessment.

North Central Transmission Line Environmental Assessment Review Panel. (1992). *North Central Transmission Line Environmental Assessment Review Panel Appendix of Written Presentations to Community Meetings: An Appendix to EIS Guidelines.* North Central Transmission Lines Public Registry 3117.0 to July 31, 1992 Folio #5. Manitoba Hydro.

This document provides the views of the affected communities on the possible impacts of the North Central Transmission Line project. Numerous concerns were expressed about the impacts of the project on the land and to the communities. Concerns were articulated at the lack of opportunity for public participation in the planning process and in the development of compensation and mitigation members.

Paci, C., Tobin, A. & Robb, P. (2002). Reconsidering the Canadian Environmental Impact Assessment Act: A place for traditional environmental knowledge. *Environmental Impact Assessment Review,* 22, 111-127.

This paper examines the implications, under Canadian environmental policy, of the recognition of indigenous title, rights and cosmologies. The ethical issues of "integrating" traditional knowledge and the practical problems of "implementing" traditional environmental knowledge into legal and regulatory environmental regimes, practices and policies are discussed. The authors suggest that a new way to examine these questions is through an Aboriginal resource planning approach. They assert that the traditional knowledge of First Nations is being increasingly formalized in British Columbia as the two levels of Canadian government are negotiating a balance between indigenous and state aspirations to find complementary and suitable mechanisms for environmental assessments.

Roue, M. & Nakashima, D. (2002). Knowledge and foresight: the predictive capacity of traditional knowledge applied to environmental assessment. *International Social Science Journal,* 54, 173.

This paper illustrates the depth of the relationship between land and personal and cultural experience and knowledge of place. The authors present excerpts from an interview with a Cree hunter who, out of his own accord and concern, provided an assessment of the specific impacts of a proposed hydro-electric dam, based on his environmental knowledge. This presentation of Cree ecological knowledge is intended to illustrate the application of indigenous knowledge in environmental assessment and the predictive power and dynamic character of such knowledge.

Sallenave, J. (1994). Traditional Ecological Knowledge: Its Rightful Place in Environmental Impact Assessment. *Northern Perspectives,* 22, Spring.

Impact assessments have two fundamental limitations. The first is the lack of adequate baseline data, and the second is the lack of an adequate framework to link ecological and social components of the environment. These limitations can be overcome by providing significant roles for Aboriginal peoples in the process. The author identifies three barriers to the integration of traditional ecological knowledge in assessments: 1) different perceptions of significance, 2) skepticism within the scientific community, and 3) hurtles within the political impact assessment decision-making process. These challenges can only be overcome if Aboriginal peoples control the application and research of traditional knowledge, and have decision-making authority regarding the use of research results.

Sub-committee of the Intergovernmental Working Group on the Mineral Industry. (1997). Aboriginal Participation in Mining- Eighth Annual Report: "Increasing Knowledge". Available at: http://www.ainc-inac.gc.ca. Accessed: 1 February 2005.

This report deals with the use and opportunities for inclusion of traditional knowledge in Canadian mining projects. Two guidelines are included in Appendix A-1: one for Aboriginal peoples in dealing with projects that have an impact on their environment and way of life, the other for managers of environmental assessment and development planning projects to ensure the inclusion of Aboriginal peoples and their traditional knowledge as part of environmental assessments or development planning processes. Various case studies and examples, including the BHP diamond mine, are discussed.

True North Energy. (2001). Traditional Land Use and Environmental Knowledge (Section 13) Application for Approval of the Fort Hills Oil Sand Project - Volume 2: Environmental Baseline Study. *Fort Hills Oil Sands Project Environmental Impact Assessment*. Submitted to the Energy and Utilities Board, Calgary, AB, by True North Energy on behalf of the Fort Hills Oil Sands Project.

This report presents the traditional land use and environmental knowledge baseline study for the Fort Hills Oil Sands environmental impact assessment. The methods used included: 1) literature review, 2) interviews with trappers and elders who will be directly affected by the project, 3) consultations with the Fort McKay Industry Relations Corporation and 4) field visits to trapping areas with local trappers. The majority of traditional ecological knowledge was gathered from individuals with registered trapline rights in Registered Fur Management Areas in the proposed project Leases. The report notes that the traditional ecological knowledge acquired was "incorporated into all aspects of the EIA" (p. 13-4).

True North Energy. (2001). Traditional Land Use and Environmental Knowledge (Section 13) Application for Approval of the Fort Hills Oil Sands - Project Volume 3: Environmental Impact Assessment. *Fort Hills Oil Sands Project Environmental Impact Assessment*. Submitted to the Energy and Utilities Board, Calgary, AB, by True North Energy on behalf of the Fort Hills Oil Sands Project.

This report comprises the impact assessment for traditional land use and traditional environmental knowledge for the environmental impact assessment of the Fort Hills Oil Sands project. An overview of baseline conditions and the analytical approaches for key impacts and results are presented. The cumulative effects on traditional land use resources are quantified.

True North Energy. (2002). *True North Energy's Response to Industry Relations Corporation's Review of the Fort Hills Oil Sands Project Environmental Impact Assessment*. Submitted to the Energy and Utilities Board, Calgary, AB, by True North Energy on behalf of the Fort Hills Oil Sands Project.

In this document the responses to the Fort McKay Industry Relations Corporation's concerns about the Fort Hills Oil Sands Project are given. Section 12 presents the Fort McKay Industry Relations Corporation concern that the study area defined in the Fort Hills environmental impact assessment did not take into account the areas most valued by the community for resource harvesting and other traditional pursuits and they requested a quantitative analysis be completed. In response, True North Energy had a quantitative analysis of the Fort McKay traditional territory completed to measure direct cumulative impacts to areas of concentrated traditional use.

West Moberly First Nations & Fedirchuk McCullough & Associates Ltd. (1997). *A Co-operative Study Undertaken by West Moberly First Nations and Fedirchuk McCullough & Associates Ltd. of the Proposed Pine Valley Coal Ltd. Development Property at Willow Flats in the Pine River Valley, British Columbia.* Consultant's report prepared by Fedirchuk McCullough & Associates Ltd., for Norecol, Dames & Moore Inc., Vancouver, BC.

The objective of the study was to identify and assess the potential impacts on West Moberly First Nations critical community use areas and heritage resources within the Pine Valley Coal Ltd. development area. Methodology consisted of: 1) an initial meeting to define the terms of reference, and 2) four field trips to the study area. Discussions and interviews were recorded on cassette tape and later transcribed. The objective of the report was to facilitate later discussions between the project proponent and West Moberly First Nations.

Winds and Voices Environmental Services Inc. (2000). Determining Significance of Environmental Effects: An Aboriginal Perspective. Canadian Environmental Assessment Agency Research and Development Monograph Series. Available at: http://www.ceaa-acee.gc.ca. Accessed: 4 April 2004.

The two key objectives of this research project were: 1) "to develop draft criteria for consideration when determining significance of environmental effects" and 2) "to recommend "better practices" for evaluating the significance of environmental effects when the interests and rights of Aboriginal people are involved." Three environmental assessment case studies - Voisey's Bay Mine and Mill Project, the BHP diamond mine (Ekati), and the Diavik diamond mine - were analyzed to determine the existing criteria and procedures used within federal environmental assessments to meet the needs and concerns of Aboriginal peoples. As a result of the study, better practices for determining the significance of environmental effects for Aboriginal people are recommended based on the issues raised by Aboriginal peoples about the environmental assessment process. These recommendations focus on "interfacing Aboriginal people's involvement, views, values and knowledge to improve the approach and quality of determining significance and [environmental assessment] practice."

Wondrasek, R. (1998). *Alliance Pipeline Ltd. Kelly Lake Cree Nation Consultation*. Consultant's report prepared by Fedirchuk McCullough and Associates for the Alliance Pipeline Ltd., Calgary, AB.

Consultation was undertaken with the Kelly Lake First Nation as part of the historical resources impact assessment for the Alliance Pipeline project. Elders participated in field reconnaissance and interviews regarding traditional land use sites along the proposed right-of-way.

A.2.3 International – Impact Assessments

Appiah-Opoku, S. (1993). Theoretical Orientations of Environmental Assessment in Canada: Application to the Third World. *Environments,* 22(3), 103-110.

This paper critically examines the theoretical bases of the Canadian environmental assessment process and explores whether applying the Canadian process to the Third World is appropriate. The need to integrate indigenous ecological knowledge and institutions in the assessment process is discussed as well as the structural and conceptual changes this requirement would entail in Third World governments.

Hopson, E. (1977). Hopson's Testimony: the Environmental Impact Assessments Associated with Prudhoe Bay Gas Pipeline Proposals. Available at: http://www.ebenhopson.com/papers/1997/ImpactAssess.html.

Inupiat Mayor of North Slope Borough's presentation regarding the inadequacy of the EIS (environmental impact statement, term used in U.S. for impact assessments and reports) process. Mr. Hopson criticizes oil and gas developers for not directly contacting North Slope Borough, involving them in planning, research or writing of EIS, and for not involving them in the planning and execution of impact assessments in their jurisdiction. In his testimony, Mr. Hopson explains that the North Slope Borough is instituting their own impact assessment programs.

Kwiatkowski, R. & Ooi, M. (2003). Integrated environmental impact assessment: a Canadian example. *Bulletin of the World Health Organization,* 81, 434-438.

The authors describe an integrated approach to environmental assessment, drawing upon the BHP Billiton diamond (Ekati) mine environmental assessment as a case study.

MAKIVIK/Hydro-Quebec. (1998). Participation Models of Impact Assessment: Indigenous Peoples Session. *Indigenous People and the Effectiveness of Environmental Assessment- Proceedings of the IAIA 98 Conference of the Indigenous Peoples Section of the International Association for Impact Assessment's 1998 Annual Conference, April 19-23, 1998*, *Christchurch, NZ.* International Association for Impact Assessment.

The "Participation Models of Impact Assessment" session brought together representatives of the Maori, Inuit, Mohawk, Creek, American Tulalip and Peruvian Amazonians, as well as industry representatives, and others to draft a mission statement for the indigenous people's section of the International Association for Impact Assessment. The conference proceedings of this session provide information on models for indigenous participation in impact assessment, on guidelines for environmental assessments and traditional knowledge, and on collaboration between indigenous peoples and industry. Case studies where Indigenous peoples were involved in impact assessment as environmental assessment practitioners are also presented.

Braund, S. & Associates. (2004). Appendix A - Technical Report Public Testimony/Traditional Knowledge by Resource. In *Alpine Satellite Development Plan Final Environmental Impact Statement.* Anchorage, AK: U.S. Department of the Interior Bureau of Land Management. Available at: www.alpine-satellite-eis.com. Accessed: 15 December 2004.

This technical report provides selected extracts from relevant public testimony recorded in North Slope, Alaska at scoping meetings and public hearings conducted between 1976 and 2003. The extracts are organized by environmental impact statement resource topic. The methods that were used to identify and extract traditional knowledge and local knowledge excerpts from the public testimony are described. Traditional knowledge and local knowledge are defined, as are the criteria used to distinguish them from issues and concerns presented in the public testimony. This technical study was completed so that the various other Alpine Satellite environmental impact statement authors could incorporate this material into their technical reports

U.S. Department of the Interior Bureau of Land Management. (2004). Alpine Satellite Development Plan Final Environmental Impact Statement, September 2004. Produced by the U.S. Department of the Interior Bureau of Land Management in cooperation with the State of Alaska, the U.S. Army Corps of Engineers, the U.S. Coast Guard, and the Environmental Protection Agency. Available at: http://www.alpine-satellites-eis.com. Accessed: 16 December 2004.

The Bureau of Land Management (BLM) Alaska State Office prepared an Environmental Impact Statement (EIS) on the impacts associated with the ConocoPhillips proposed development of five satellite oil accumulations in the Northeast National Petroleum Reserve-Alaska and the Colville River Delta. The EIS was prepared in fulfillment of obligations under the U.S. National Environmental Policy Act (NEPA). The project had the potential to affect local Inupiat traditional use. The EIS discussed the cultural history and values, traditional economy and lifeways, community health and welfare, as well as potential impacts to harvesting, cultural resources and social systems. Impacts in the context of 'environmental justice' are also discussed. No traditional knowledge study was conducted per se. Rather, traditional knowledge was extracted from public testimony and organized by resource (Appendix A).

A.3 Guidelines

A.3.1 Northern - Guidelines

Arctic Borderlands Ecological Knowledge (ABEK) Co-op. (2005). Draft Training Workbook for Community Ecosystem Monitors/Interviewers. March 24, 2005. (ABEK is online at: www.taiga.net/coop.)

These draft guidelines were developed to aid in training community members to conduct interviews with monitors collecting information for ABEK's Community Monitoring Program. It steps trainees through the interview process, including: how to ask permission for an interview, materials needed during an interview, interview tips and techniques, instructions on how to mark-up maps with interviewees, audio taping, how to end interviews, take and record notes, and summarize interview results.

Aurora Research Institute. (2004). *Doing Research in the Northwest Territories: A Guide for Researchers*. Inuvik, NT: Aurora Research Institute.

This guidebook provides information on conducting scientific research in the Northwest Territories, including information on obtaining a research license. Community consultation is a vital part of the licensing procedures. Researchers are expected to follow ethical principles; references for documents that provide such guidelines are listed.

AXYS Environmental Consulting Ltd. (2000). *Regional Approaches to Managing Cumulative Effects in Canada's North*. Consultant's report prepared for the Department of the Environment Government of Canada, Yellowknife, NWT.

A coordinated regional framework approach is recommended to assist decision-making about cumulative effects on the environment, communities, and human health in the north. This report describes how to build such a framework based on principles, building blocks, focus and tools, combined to approach effects management from different perspectives. Scientific and knowledge-based systems, including the incorporation of traditional knowledge, are recognized as tools in the framework. Federal and provincial requirements relevant to cumulative effects assessment are covered. Twenty-two Canadian case studies were evaluated based on key attributes and reviewed for key lessons learned.

Clarkson, P. & Andre, D. (2002). Communities, Their Knowledge and Participation: Cumulative Effects Assessment Management Framework and Mackenzie Valley Cumulative Impacts Monitoring Program: Role of Traditional Knowledge, Elders and the Communities: Task 9/6. Prepared for the Gwich'in Renewable Resource Board and Gwich'in Tribal Council. Available at: http://www.ceamf.ca/ceam_documents. Accessed 5 March 2004.

This report addresses how to use and incorporate traditional knowledge into cumulative effects assessment and cumulative impacts management. It examines current practices and policies. Community members (including elders) were asked how to best incorporate their knowledge. The project also addressed community capacity concerns, ways to collect and use traditional knowledge, concerns about intellectual property rights and ways to integrate traditional knowledge with other knowledge.

Community of Aklavik, Wildlife Management Advisory Council (NWT), & Joint Secretariat. (2000). *Aklavik Inuvialuit Community Conservation Plan: A Plan for the Conservation and Management of Renewable Resources and Lands Within the Inuvialuit Settlement Region in the Vicinity of Aklavik, Northwest Territories*. Inuvik, NWT: Wildlife Management Advisory Council (NWT).

This plan expresses the Inuvialuit community's specific goals and objectives with respect to conservation of lands, waters and living resources in the Inuvialuit Settlement Region, in particular in the Aklavik conservation planning area. It makes recommendations and describes activities to be undertaken by individuals and organizations at the local, regional and national level. This plan was developed to help protect the environment in the Delta area and onshore and offshore areas to ensure cultural survival of the Inuvialuit community. Development of the plan was coordinated by representatives of the Aklavik and Hunters and Trappers Committees, Community Corporation, elders and other community representatives. In addition, considerable effort was made to obtain opinion and advice from Inuvialuit and Gwich'in members of the Community as well as government agencies. The plan includes descriptions of the importance of certain sites to the community of Aklavik, harvest seasons and areas, and the traditional use of various species.

Community of Inuvik, Wildlife Management Advisory Council (NWT), & Joint Secretariat. (2000). *Inuvik Inuvialuit Community Conservation Plan: A Plan to Provide Guidance Regarding the Conservation and Management of Renewable Resources and Lands within the Inuvialuit Settlement Region in the Vicinity of Inuvik, NWT*. Inuvik, NWT: Wildlife Management Advisory Council (NWT).

This community-based planning document briefly describes the current conservation and resource management system in the Inuvialuit Settlement Region, in particular within the Inuvik sub region. Five goals for community-based renewable resource management and decision-making are detailed. One of the goals described is the requirement for a community-based process for land use decisions and cumulative impact management that will "protect community values and the resources on which priority lifestyles depend." Another of the goals is to define a wildlife management system using community knowledge. The community values of the Inuvialuit with respect to conservation and resource management in the planning area are described. In keeping with these values, the Inuvialuit community has designated land management categories based on priority land uses and areas of special ecological and cultural importance. Processes to assist with the management of cumulative impacts (Section 4.2), recommendations for environmental screening (Section 4.4), and review of development proposals are also presented (Section 4.3).

Community of Tuktoyaktuk, Wildlife Management Advisory Council (NWT) & Joint Secretariat. (2000). *Tuktoyaktuk Community Conservation Plan: A Plan for the Conservation and Management of Renewable Resources and Lands within the Inuvialuit Settlement Region in the Vicinity of*

Tuktoyaktuk, Northwest Territories. Inuvik, NWT: Wildlife Management Advisory Council (NWT).

This plan expresses the Inuvialuit community's specific goals and objectives with respect to conservation of lands, waters and living resources in the Inuvialuit Settlement Region, in particular in the Tuktoyaktuk conservation planning area. It makes recommendations and describes activities to be undertaken by individuals and organizations at the local, regional and national level. This plan was developed to help protect the environment in the Delta area and onshore and offshore areas to ensure cultural survival of the Inuvialuit Community. Development of the plan was coordinated by representatives of the Tuktoyaktuk Hunters and Trappers Committee, Community Corporation, elders and other community representatives. The plan includes descriptions of the importance of certain sites to the community of Tuktoyaktuk, seasonal harvesting area, and the traditional use of various species.

Council of Yukon First Nations. (2000). *Traditional Knowledge Research Guidelines: A Guide for Researchers in the Yukon*. Whitehorse, YK: Council of Yukon First Nations.

Following the implementation of the Yukon Umbrella Final Agreement, the Council of Yukon First Nations felt the need to develop guidelines to ensure the ethical and appropriate treatment of traditional knowledge and its holders. These guidelines were written by a local Aboriginal organization dealing with development issues and discuss access to, as well as the collection, storage and use of, traditional knowledge.

Council for Yukon Indians. (1995). *Guide to the Elders Documentation Project*. Whitehorse, YK: Council for Yukon Indians, Curriculum Development Program.

Approximately 150 elders of the Yukon have shared their wisdom, knowledge and skills of a lifetime experience through the Elders Documentation Project. Their stories, skills of living off the land, language, knowledge of the traditional way of living and wisdom for making a better future are recorded on tape, transcribed into text and indexed through this guide. The purpose of this guide is to put the wealth of information into a more useful form, in a way that could show the breadth and depth of the collection and that could be made available to curriculum developers, researchers, educators and students. The guide includes an introduction to the staff of the elders documentation project, a description of the tape and transcript collection, where to access this collection, uses for the collection, profiles of some elders, the interview topics and an index to the interview topics.

Dene Cultural Institute (1998). Guidelines for the conduct of participatory community research to document traditional ecological knowledge for the purpose of environmental assessment and environmental management. Appendix 1: Sample Guidelines. In L. Grenier (ed.), *Working with Indigenous Knowledge*. Available at: http://web.idrc.ca. Accessed: 7 January 2005.

These detailed guidelines provide procedures for community-managed, community-controlled, participatory research projects. Intellectual property rights are addressed.

Government of the Northwest Territories. (1990). *Oral Tradition Research Guide*. Yellowknife, NWT: Cultural Affairs Division, Department of Culture & Communications, Government of the Northwest Territories.

This guide is a reference for researchers outlining the basic procedures involved in recording and documenting oral traditions. The information was compiled from seminars delivered by representatives of the Department of Culture and Communications, Government of the Northwest Territories, at the second annual Oral Traditions Research Workshop in Yellowknife, June 1990. The guide covers basic information about oral traditions, developing an oral traditions project,

preliminary research and preparation, interviewing methods, techniques for transcribing and translating taped interviews, and procedures for cataloguing and storing archival recordings.

Gwich'in Social and Cultural Institute. (2002) *Working with Gwich'in Traditional Knowledge in the Gwich'in Settlement Region.* Draft Policy Passed in Principle at Gwich'in Tribal Council Meeting, Spring 2002, 1-14. Whitehorse, YK.

The draft policy statement identifies the scope of the policy and defines the terms of ownership, rights, responsibilities, and management issues associated with Gwich'in traditional knowledge. Guiding principles include: education, informed consent, control of traditional knowledge, cultural and heritage resources, sharing, participation, respect and ethical use in research, equality in research evaluation, use and preservation, and ethical use and application in resource management. Attached Schedule A is a "Research Agreement Framework" which spells out the terms for conducting research in the Gwich'in Settlement Region.

Hart, Elisa (1995). *Getting Started in Oral Traditions Research.* Prince of Wales Northern Heritage Centre. Yellowknife, NT.

This report is meant for adults and students in the Northwest Territories who want to do oral history research. It deals with: 1) definitions of terminology (e.g., "traditional knowledge), 2) project planning, 3) interview development, 4) conducting interviews, 5) translating and transcribing, and, 6) writing and presenting the report.

Huntington, H. (2000). Using Traditional Ecological Knowledge in Science: Methods and Applications. *Ecological Applications*, 10(5), 1270-1274.

This paper examines case studies to describe the benefits of using traditional ecological knowledge in scientific and management contexts and the methods used to do so. Methods that are described are: semi-directive interviews, questionnaires, facilitated workshops, and collaborative field projects. The author says that these methods are not mutually exclusive but are starting points for the development of better methods that meet the needs of the researchers and the communities involved (p. 1270). The author also notes that participant selection should be by the identification of key informants, rather than by random sampling (p. 1271).

Huntington, H. (1998.) Observations on the Utility of the Semi-directive Interview for Documenting Traditional Ecological Knowledge. *Arctic* 51(3), 237-242.

This paper describes the author's experience using the semi-directive interview to document traditional ecological knowledge about beluga whales in Alaska. This method allows the participants as well as the researcher to guide the interview so that associations made by the participant, and not just those anticipated by the researcher, are discussed. Using maps as the starting point for discussions with individuals or groups, the interviews covered expected topics as well as unanticipated topics. The author found the semi-directive interview to be an effective and powerful method for accurate and comprehensive documentation of traditional ecological knowledge. It worked especially well in group interviews, which allowed participants to stimulate and validate each other.

Inuit Circumpolar Conference. (1996). Recommendations on the Integration of Two Ways of Knowing: Traditional Indigenous Knowledge and Scientific Knowledge. Seminar on the Documentation and Application of Indigenous Knowledge, November 15-17, Inuvik, NWT. Available at: http://www.inuitcircumpolar.com/tek.htm.

This report constitutes the proceedings from a meeting in Inuvik, Northwest Territories, that brought together hunters, elders, resource managers and researchers from Alaska, Canada, Greenland and Russia to discuss indigenous knowledge issues and prepare recommendations for its application in resource management and research. This seminar was a component of a beluga

indigenous knowledge pilot project undertaken under the auspices of the Working Group on the Conservation of Arctic Flora and Fauna, under the Arctic Environmental Protection Strategy. Although this seminar focused on indigenous knowledge about beluga whales, broader aspects of indigenous knowledge were also addressed. Hunters, elders, resource managers and researchers made presentations on a variety of topics, including indigenous knowledge research, co-management of resources, intellectual property rights, community concerns and solutions, and case studies where indigenous knowledge was used in a management or decision-making capacity. Specific questions addressed by participants in working groups were: 1) How do you document indigenous knowledge?, 2) How do you integrate it with scientific knowledge?, 3) How do you apply it in resource management and research? and 4) How do you ensure community involvement? This document offers recommendations on the promotion of traditional ecological knowledge at the community level, and on its use in community consultations. It also provides suggestions for how it should be documented, applied and integrated at various levels. Training recommendations include cross-cultural training for researchers, and training and capacity-building for community residents.

Inuit Tapirisat of Canada. (1998). Research Principles for Community-Controlled Research with the Inuit Tapirisat of Canada. Appendix 1 – Sample Guidelines. In L. Grenier (Ed.), *Working with Indigenous Knowledge*. Available at: http://web.idrc.ca. Accessed: 7 January 2005.

These guidelines offer twelve principles for community-controlled research and reflect a community-based perspective on how research should be conducted. This is an internal, draft document and was provided to researchers for review only. Researchers were instructed not to cite or distribute the document.

Inuit Tapirisat of Canada & NCP Secretariat (2004). Northern Contaminants Program Guidelines for Responsible Research. Operation Management Guide for the Northern Contaminants Program (NCP). Available at: http://www.inchr.org. Accessed: 9 January 2005.

These guidelines are for community consultation and the development of research agreements with communities. They are based on the results of a workshop on community-researcher relationships that included four northern Aboriginal organizations: the Council of Yukon First Nations, the Dene Nation, the Inuit Circumpolar Conference and the Inuit Tapirisat of Canada.

Johnson, M. (Ed.). (1992). *Lore: Capturing Traditional Environmental Knowledge*. Ottawa, ON: Dene Cultural Institute and International Development Research Centre.

This book presents the results of a workshop on the documentation and application of traditional environmental knowledge through community-based research. It examines the process of collecting traditional environmental knowledge while using a 'participatory action' or 'community-based' approach. It looks at the problems associated with documenting traditional knowledge - problems that are shared by researchers around the world - and it explores some of the means by which traditional knowledge can be integrated with western science to improve methods of natural resource management. The book is intended to assist in the development of effective, culturally appropriate research methods. It has been used as a reference text for the sections on issues and guidelines for conducting traditional knowledge studies, and on training and engagement.

Kavik-AXYS Inc. (2002). *Cumulative Effects Assessments in the Inuvialuit Settlement Region: A Guide for Proponents*. Prepared for the Environmental Impact Screening Committee and the Environmental Impact Review Board, Inuvik, NWT.

This document has been prepared as a guide for proponents who must conduct cumulative effects assessments for proposed developments in the Inuvialuit Settlement Region and is a companion document to a reviewer's guide also prepared by Kavik-AXYS. The proponent's guide

summarizes the information that proponents should provide in their applications, comments on best practice, reviews assessment process steps, identifies opportunities to manage effects and discusses the evaluation of significance. The importance of community participation is emphasized and it is noted that local knowledge should be used in the assessment. The importance of traditional knowledge in identifying issues is also covered.

Kavik-AXYS Inc. (2002). *Cumulative Effects Assessments in the Inuvialuit Settlement Region: A Guide for Reviewers*. Consultant's report prepared for the Environmental Impact Screening Committee and the Environmental Impact Review Board, Inuvik, NWT.

This report will assist the Environmental Impact Screening Committee and the Environmental Impact Review Board in their consideration of the cumulative effects likely to be caused by a proposed development in the Inuvialuit Settlement Region. The guide emphasizes the environmental impact screening process under the Inuvialuit Final Agreement. The guide is structured as a set of questions that the screener needs to consider when coming to a decision on a project.

Kavik-AXYS Inc. (2002). *Cumulative Effects Assessments in the Inuvialuit Settlement Region: Current and Potential Capability*. Consultant's report prepared for the Environmental Impact Screening Committee and the Environmental Impact Review Board, Inuvik, NWT.

This report reviews the tools available to the Environmental Impact Screening Committee and the Environmental Impact Review Board to undertake cumulative impact assessment and management of the effects of activities in the Inuvialuit Settlement Region. The legislative context is examined along with 'process' and 'technical tools. Process tools are those that are available under the legislative mandate and capacity of the Inuvialuit Settlement Region. Technical tools are those that are available given the current information and understanding of the resources in the Inuvialuit Settlement Region. The analysis and recommendations recognize the importance of knowledge based systems and the co-management institutions in cumulative effects assessment and management in the Inuvialuit Settlement Region.

Kavik-AXYS. (2003). *Annotated Bibliography for Heritage Resources in the Inuvialuit Settlement Region Part A*. Consultant's report prepared for Environmental Studies Research Funds, Inuvik, NWT.

This annotated bibliography focuses on recorded heritage resource sites within the areas of current oil and gas exploration and recorded traditional knowledge for the purpose of enhancing the understanding of heritage site locations and site values within the Inuvialuit Settlement Region. This report is an initial step in addressing community feedback on previous heritage studies in the area, which specified that a more detailed study of local traditional knowledge and its relationship to heritage sites was required. Part A of the report includes an overview description of data sets and an evaluation of the identified data gaps in existing literature. Recommendations for further traditional knowledge and oral history research are made, and the specific issues for proponents to consider when conducting traditional land use studies in the area are listed. Further recommendations are made for participatory community engagement in further research in the area.

Lutsel K'e Dene First Nation. (2001). Nn hat'ni - Watching the Land: Cumulative Effects Assessment and Management in the Denesoline Territory: Final Report. Submitted to the NWT CEAM Steering Committee and Canadian Arctic Resources Committee. Available at: http://www.ceamf.ca/ceam_ documents. Accessed: 5 March 2005.

This report was produced by a First Nation (Lutsel K'e Dene) to demonstrate culturally-appropriate methodology for community-based cumulative effects monitoring and management. The focus of this study was to develop a community-based plan for monitoring and managing the cumulative effects in the traditional territory of the Denesoline people. This study demonstrates a

culturally-appropriate methodology for using the Denesoline traditional ways of knowing in the environmental assessment process. A pilot project to test the CEAM plan was conducted through the assessment of the impacts of the ice roads supplying the Snap Lake and Kennedy Lake diamond exploration sites. The results of the pilot project are appended.

Nakasuk, S., Paniaq, H., Ootoova, E., & Angmaalik, P. (1999). *Interviewing Inuit Elders – Introduction, Volume 1*. Iqaluit, NU: Nunavut Arctic College.

This volume is the first part of a series of five books devoted to the study of oral traditions. The research presented was conducted by students of the Inuit studies program of Nunavut Arctic College. The project was set up to develop the skills of students in interviewing, transcribing, and writing essays. In addition to background information on the design of the course, discussions on the production and transmission knowledge in Inuit society, and the nature of Inuit knowledge, several life stories, essays and stories are presented.

Nunavut Research Institute & Inuit Tapirisat of Canada (1998). Negotiating Research Relationships: A Guide for Communities. Nunavut Research Institute and Inuit Tapirisat of Canada. Available at: http://pooka.nunanet.com. Accessed: 7 January 2005.

This guide helps explain the rights and responsibilities of Inuit communities in negotiating research relationships.

Oakes, J., & Riewe, R. (1996). Communicating Inuit Perspectives on Research. In *Issues in the North, Volume I,* (pp. 71-79). Canadian Circumpolar Institute Occasional Publication Number 40. Edmonton, AB: Canadian Circumpolar Institute.

This publication is a joint effort of the Canadian Circumpolar Institute and the Department of Human Ecology at the University of Alberta, and the Department of Native Studies at the University of Manitoba. This paper provides an excellent overview of some of the major issues that the Inuit feel need to be addressed by southern researchers, including: hiring local residents, protecting intellectual property rights and the need for community review.

Roberts, K. (1994). Circumpolar Aboriginal People and Co-management Practice: Current Issues. In K. Roberts (Ed.), *Co-management and Environmental Assessment Proceedings, Circumpolar Aboriginal People and Co-management Practice: Current Issues in Co-management and Environmental Assessment, November 20-24, 1995*, *Inuvik, NWT*. Calgary, AB and Inuvik, NWT: Arctic Institute of North America and Joint Secretariat - Inuvialuit Renewable Resources Committees.

This one-week workshop examined the experiences of northern co-management regimes, and current issues in northern co-management and environmental assessment practice. Two sessions focused on traditional knowledge: 'Community participation and traditional knowledge', and 'Traditional knowledge and the environmental assessment process'. Guidelines, issues and observations with respect to obtaining and using traditional knowledge in environmental assessment are discussed.

Sherry, E. (Ed.). (1999). *The Land Still Speaks: Gwitchin Words About Life in Dempster Country*. Old Crow, YK: Vuntut Gwitchin First Nation.

This book provides stories of Gwich'in elders. It also includes a chapter on the nature and content of traditional knowledge and guidelines for conducting traditional knowledge research.

Smith, B., Cooley, D., Tousignant, J., & Cunningham, N. (2000). *Using Local Knowledge Focus Groups*. Whitehorse, YK: Yukon Renewable Resources - Fish and Wildlife Branch.

This paper is intended as a how-to guide for wildlife managers and facilitators to apply local knowledge focus groups. It covers topics related to the design and analysis of focus groups,

applying local knowledge focus groups, and limitations of the local knowledge focus group approach.

Usher, P. (2001). Traditional Ecological Knowledge in Environmental Assessment. Presentation given at the *Northern Impact Assessment Seminar, Yellowknife, NWT, 30 October 2001*.

Usher's presentation outlines policy requirements for and barriers to involving traditional knowledge in environmental assessment. Five requirements for the successful utilization of traditional knowledge in environmental assessment are listed. Traditional ecological knowledge is discussed, including definitions, categories, issues, and collection. Finally, integrating traditional ecological knowledge in the public review process of an environmental assessment is outlined with reference to Voisey's Bay panel guidelines. Three "lessons" for improving the process are provided.

West Kitikmeot Slave Study. (n.d.). Traditional Knowledge Research Guidelines. Available at: http://www.wkss.nt.ca. Accessed: 20 December 2004.

These guidelines were drafted by the West Kitikmeot Traditional Knowledge Committee. The requirement for community support and control is foremost.

A.3.2 Canadian - Guidelines

Aboriginal Affairs Branch, British Columbia Ministry of Forests. (1996). Traditional Use Study Program Guidelines (2nd edition). Available at: http://www.for.gov.bc.ca. Accessed: 14 December 2004.

This document provides guidelines on writing proposals for traditional land use studies, traditional use site recording guides, and technical specifications for traditional land use databases. The guidelines were produced for First Nations to consult when submitting a proposal to the Province (British Columbia) to conduct a traditional use study. These guidelines provide information on evaluating traditional use sites, provides standards for mapping the data collected, and advice on standardized methodologies.

Acres International Ltd. (1995). Treaty Nations' Environmental Assessment Manual Focus Group.

A focus group of First Nations' representatives from Treaty areas 6, 7 and 8 in Alberta was established to oversee the preparation of this manual. The manual outlines a process that Bands may adopt to conduct environmental assessments and provides an overview of tools and techniques appropriate for the use of First Nations in conducting environmental assessments. The purpose was to assist Bands to build their environmental assessment capacity and meet requirements under the Canadian Environmental Assessment Act. Traditional knowledge was recognized as an important source of information that should be integral to project planning, assessment and review. A framework for conducting a traditional knowledge study is outlined.

Brascoupé, S. & Mann, H. (2001). *A Community Guide to Protecting Indigenous Knowledge*. Ottawa, ON: Research and Analysis Directorate, Department of Indian Affairs and Northern Development.

This report is designed to be a guide to a community-based model for protecting traditional knowledge. It outlines key issues and steps in the collection, community engagement, use and protection of traditional knowledge. It is orientated towards community-based programs, but offers some useful tips and guidance to the outside practitioner.

Cadieux, D. (2000). *An Illustrated Guide to Parks Canada Relationships with Aboriginal People*. Hull, QC: Parks Canada.

This guide provides background information on Parks Canada's relationship with Aboriginal peoples including policy, legislation and operation approach to Aboriginal issues. Eight different

initiatives are provided as are two detailed case studies of co-operative management of parks. These case studies highlight 'best practices' within the agency.

First Nations Environmental Assessment Technical Working Group (FNEATWG). (2005). *First Nations Environmental Assessment Toolkit*. BC: FNEATWG Administration, Canadian Columbia River Inter-Tribal Fisheries Commission.

The toolkit is designed to help First Nations in British Columbia who are interested in participating in environmental assessments. However, much of the information contained within the toolkit is applicable to Aboriginal groups throughout Canada, including the North. Sections include: environmental assessment basics, environmental assessment from an First Nation perspective, various sections on different assessment processes, a section dedicated to traditional knowledge and environmental assessment (Section 7), guidance on reviewing assessment reports, sand on negotiating development agreements, follow up, case studies (Voisey's Bay and Tulsequah Chief projects) and references. Section 7 contains information that is very helpful to Aboriginal peoples getting involved in impact assessment, and addresses issues such as the protection of traditional knowledge, finding funding, different ways to contribute traditional knowledge to the assessment, and the legal and policy implications. The subsection dealing with how to develop a traditional knowledge study from a community perspective (pp. 14-18), addresses many of the same issues that are dealt with in Volume 2 of this guide. Section 7 also outlines how providing traditional knowledge to an impact assessment process can be advantageous to an Aboriginal community, including (p.2):

- The identification of issues of importance to the community
- An improved understanding of the community's perspective of potential project impacts and mitigation
- An improved understanding of the community's issues and concerns by proponents and regulators, and the facilitation of the proponent-community relationship
- Contribution to design of mitigation and follow up programs, and improved management of project effects (environmental, socio-economic and cultural)
- Community benefits that extend beyond the impact assessment process, including planning, education, community development and land claims.

The toolkit suggests that First Nations should consider providing traditional knowledge even if they are opposed or uncertain about the project, as some of these advantages may still be obtained by doing so. This toolkit is a comprehensive resource for Aboriginal communities who are involved in the impact assessment process.

Garvin, T., Nelson, S., Ellehoj, E. & Redmond B. (2001). *A Guide to Conducting a Traditional Knowledge and Land Use Study*. Edmonton, AB: Canadian Forest Service, Northern Forestry Centre.

This book was written as a 'how-to' guide for traditional land use studies. Traditional knowledge and traditional land use is discussed briefly and sources on traditional knowledge and land use are listed. This guide provides methods for interviewing, mapping, data validation, information management and implementing the traditional land use data.

Hegmann, G., Cocklin, C., Creasey, R., Dupuis, S., Kennedy, A., Kingsley, L., Ross, W., Spaling H., & Stalker, D. (1999). *Cumulative Effects Assessment Practitioners Guide*. Prepared by AXYS Environmental Consulting Ltd. and the CEA Working Group for the Canadian Environmental Assessment Agency. Hull, QC: Canadian Environmental Assessment Agency.

This guide is for practitioners who are preparing cumulative effects assessments as part of a submission to regulators for project review. The guide provides an overview and clarification about the current understanding of the practice of cumulative effects assessment, suggests practical approaches that meet statutory requirements and best professional practice, and case studies of approaches used in cumulative effects assessments.

Honda-McNeil, J. & Parsons, D. (2003). *Best Practices Handbook for Traditional Use Studies*. Edmonton, AB: Alberta Aboriginal Affairs and Northern Development, Government of Alberta.

This handbook provides information for anyone who wants to learn about traditional use studies. It presents best practices and information based on interviews and discussions with people, communities and organizations in Alberta that have been involved in traditional use studies. Topics covered include: what is a traditional use study, planning the study, skills required by those conducting the study, the type of research that should be conducted, mapping, and applying the results of the study.

Labour, S. (2002). Traditional Knowledge Methodology for Impact Assessments (Draft). Internal document prepared for AXYS Environmental Consulting Ltd., Calgary, AB.

This is based on a preliminary workshop to examine how methods for collecting and using traditional knowledge in the impact assessment process could be improved. The document covers: 1) the basic principles and requirements surrounding the collection of traditional knowledge, including interdisciplinary considerations, 2) ways that traditional knowledge can be applied throughout the EIA process, 3) the steps and deliverables involved in a traditional knowledge study, and 4) information on regulatory context and definitions of traditional knowledge.

Menzies, C.R. (2001). Putting Words into Action: Negotiating Colloborative Research in Gitxaala. Department of Anthropology and Sociology, University of British Columbia. Available at: http://faculty.arts.ubc.ca/menzies/words.htm. Accessed: 12 April 2005.

This paper is written from the point of view of an Aborginal scholar working at the University of British Columbia, and discusses the process of negotiating and carrying out respectful research relationships with a First Nation community. Ethical issues and procedures, methodological innovations, and considerations about traditional knowledge demonstrate transformative action for research. Emphasis is placed on the rights, responsibilities and obligations that researchers assume when working with traditional knowledge.

Parks Canada (2000). An Approach to Aboriginal Cultural Landscapes. Parks Canada Aboriginal Affairs Secretariat and National Network. Available at: http://parkscanada.pch.gc.ca. Accessed: 5 March 2002.

The concept of Aboriginal cultural landscapes was explored through consultation with experts, who consistently emphasized the complex and intensive relationship between Aboriginal culture and the land. As such, Aboriginal participation was considered crucial for identifying important landscapes for commemoration as national historic sites. Traditional knowledge is identified as a key source for understanding the values of place to Aboriginal people.

Robinson, M., Garvin, T. & Hodgson, G. (1994). *Mapping How We Use Our Land: Using Participatory Action Research*. Calgary, AB: Arctic Institute of North America, University of Calgary.

This manual is for mapping traditional land use and occupancy. It covers methods for collecting and organizing traditional knowledge.

Scott, K. & Receveur, O. (1995). Ethics for Working with Communities of Indigenous Peoples. *Can. J. Physiol. Pharmacol*. (73), 751-753.

Specific ethical guidelines for working with indigenous peoples have been adopted by several research institutions. Ethical principles aim at promoting cooperation and mutual respect between researchers and communities of indigenous peoples. These principles are meant to be continually assessed. This article reports on the content and format of current ethical guidelines and highlights directions for further development.

Tobias, T. (2000). *Chief Kerry's Moose: a Guidebook to Land Use and Occupancy Mapping, Research Design and Data Collection*. Vancouver, BC: Union of the BC Indian Chiefs and Ecotrust Canada.

This book is for leaders, administrators, and program personnel at the community or First Nation government level, as well as their consultants and external research people, and community researchers who have had experience with studies related to the collection of interview data about traditional use of resources and occupancy of lands by Aboriginal peoples and the presentation of those data in map form. It considers the key factors that lead to success from Aboriginal mapping and provides a guide. The guide emphasizes the importance of quality data and the importance of avoiding the museum approach to mapping, and looks at how to lay the groundwork for good research. Obtaining and training good personnel, taking control of the research design, and respecting your workers' limitations are discussed. The five defining characteristics of any project (why, who, when, where, and what) are discussed, along with the principles guiding research design and implementation, the measures of quality, and the culture of research. The guide ends with a summary of recommendations.

A.3.3 International - Guidelines

Alaska Native Knowledge Network (2004). Welcome to Cultural Research, Documentation and Impact Analysis. Available at: http://www.ankfn.uaf.educ/cultres.html. Accessed: 16 December 2004.

This site provides information about indigenous knowledge and cultural research, focusing on community-based, participatory approaches to research, documentation and impact analysis. It includes links to relevant research, institutions and guidelines.

Berkes, F. (1999). *Sacred Ecology: Traditional Ecological Knowledge and Resource Management*. Philadelphia, PA: Taylor & Francis.

One of the most comprehensive texts available on the cultural and political importance of traditional knowledge to Indigenous peoples. Berkes explains that traditional knowledge research has to be participatory, with Indigenous peoples treated as equals, must recognize that written accounts are incomplete, and that non-Indigenous researchers must be prepared to question their own values, as cross-cultural sensitivity is at the heart of understanding traditional knowledge. In fact, he asserts, one of the most fundamental lessons of traditional ecological knowledge is that worldviews and beliefs do matter when it comes to resource management.

Daes, E. (n.d.). Principles & Guidelines for the Protection of the Heritage of Indigenous People, Alaska Native Knowledge Network Website. Available at: http://www.ankn.uaf.edu/protect.html. Accessed: 13 September 2001.

This document provides principles and guidelines for the protection of the heritage of Indigenous peoples and was produced in conformity with resolutions and decisions of the Sub-Commission on Prevention of Discrimination and Protection of Minorities of the Commission on Human Rights, Economic and Social Council, United Nations. The Principles are based on the self-determination of Indigenous peoples. The Guidelines have the following chapters: 1) Definitions, 2) Transmission of Heritage, 3) Recovery and Restitution of Heritage, 3) National Programmes and Legislation, 4) Researchers and Scholarly Institutions, 5) Business and Industry, 6) Artists, Writers and Performers and, 7) International Organizations.

Dahl, A. (1998). Small Island Environmental Management: A do-it-yourself course and training programme. Available at: http://islands.unep.ch/siem.htm. Accessed: 29 October 2004.

This document aims to help people who live on small islands to manage their environment and plan sustainable development. Unit E3, "Salvaging and Evaluating Traditional Knowledge" provides information on categories of traditional knowledge and ways in which it can be recorded for the future. Some guidance on evaluating traditional knowledge is also provided. These materials are intended for non-commercial use only.

Emery, A. (2000). *Integrating Indigenous Knowledge in Project Planning and Implementation*. Hull, QC: International Labour Organization, The World Bank, Canadian International Development Agency and KIVU Nature Inc.

The purpose of the guidelines is to help develop a framework within which affected indigenous peoples can decide whether a proposed development project should go ahead, and to offer them the opportunity to participate in the planning and implementation of the project using their traditional knowledge systems to held guide decision-making. These guidelines address the questions and issues related to how indigenous and scientific knowledge systems may be used together. General guidelines for project proponents, governments and nongovernmental organizations (NGOs) are presented that will aid them in contacting indigenous peoples and incorporating their knowledge into project planning, implementation, operation and evaluation. A best practices checklist is included as are traditional knowledge case studies from around the world. Guidelines are also presented for indigenous peoples to help them to participate successfully and beneficially in the development process. Specific guidelines for proponents, governments, and NGOs are included. The appendices provide comprehensive information on the "global knowledge base" for traditional knowledge research including websites, centres and literature.

Emery, A. (1997). *Guidelines for Environmental Assessments and Traditional Knowledge (Draft)*. March 1997.

This report was written to draw the world's attention to the need to include traditional knowledge in environmental assessments. The report calls for holding workshops to test these Guidelines so as to alert people to the need for a more rigorous protocol for including indigenous people, and for people to come together to make recommendations about the best means of achieving the goal of mutually beneficial results from development projects in areas involving indigenous people. The workshops will serve as a catalyst for awareness, as well as a vehicle for creating a new set of Guidelines. Guidelines are provided on "establishing a process that will work to everyone's benefit (p. 65)." Separate, but parallel, guidelines are provided for indigenous groups, developers and government.

Grenier, L. (1998). *Working With Indigenous Knowledge: A Guide for Researchers*. Ottawa, ON: International Development Research Centre.

This guidebook provides a comprehensive overview of traditional knowledge research and assessment. It has been used as a reference for the collection and engagement overview sections. It provides suggestions for developing a research framework, and includes the Inuit Tapirisat of Canada and Dene Cultural Institute guidelines for traditional knowledge research.

Johannes, R. (1993). Integrating Traditional Ecological Knowledge and Management with Environmental Impact Assessment. In J. Inglis (Ed.), *Traditional Ecological Knowledge: Concepts and Cases* (pp. 33-39). Ottawa, ON: International Program on Traditional Ecological Knowledge and International Development Research Centre.

This article suggests four aspects of traditional ecological knowledge that are relevant to impact assessment: taxonomic, spatial, temporal and social. Local names (taxonomic) reveal the importance and relevance of various resources (e.g., plants, animals, soils) to local peoples. Spatial references such as the location and distribution of various species and/or sites are intimately known by local Aboriginal people and this information is frequently useful for assessments. Knowledge about the location and timing of significant biological events (temporal) is held by local peoples, but may take assessment teams years to compile. The social frame of reference recognizes that there is "differing awareness among cultures of the impact that people can have on their natural environment." Trained researchers are critical to the process to ensure that the potential significance of the information being collected is not lost. One of the current weaknesses in traditional ecological knowledge research is data verification. Another challenge is the 'attitude problem' of many biologists. Traditional ecological knowledge research in impact assessments can enable greater involvement of Aboriginal peoples in project planning and development.

Morin-Labatut, G. (1993). International Symposium on Indigenous Knowledge and Sustainable Development: Recommendations and Action Plan. Indigenous Knowledge and Development Monitor. Available at: http://www.nuffic.nl/ciran/ikdm.

Recommendations and action plan from this symposium include suggestions for manuals, policy, archiving, sharing, using and conducting research in indigenous knowledge.

MOST/NUFFIC (2002). Database of best practices on indigenous knowledge. MOST Clearing House on Best Practices. Available at: http://www.unesco.org/most/bpikreg.htm. Accessed: 16 December 2004.

This on-line database contains examples of successful projects illustrating the use of local and indigenous knowledge in the development of cost-effective and sustainable survival strategies, covering Africa, Asia-Pacific, Europe, North America and Latin America & Caribbean. It also includes a geographical and thematic index and an index of institutions acting as indigenous knowledge resource centres.

Management of Social Transformations Programme and the Centre for International Research and Advisory Networks (1999). Best Practices on Indigenous Knowledge. Available at: http://www.unesco.org/most/bpikpub.htm. Accessed: 15 December 2004.

The purpose of this publication is to show how indigenous knowledge can be put to good use in development practice. It provides 27 best practices in the field of indigenous knowledge that have been included in UNESCO's MOST Clearing House Best Practices Database. This document includes methods and procedures for the collection and use of indigenous knowledge.

NSW National Parks and Wildlife Service. (2003). *Draft Guidelines for Aboriginal Heritage Impact Assessment*. Sydney, Australia: Prepared by New South Wales National Parks and Wildlife Service with additional text by K. Buck.

This document was produced in Australia to clarify the information requirements for proponents and consultants seeking to meet their statutory obligations under relevant legislation and to facilitate positive outcomes for Aboriginal cultural heritage by involving Aboriginal communities in the assessment process. The document emphasizes the need for environmental assessments to consider the full range of Aboriginal heritage values, rather than focusing only on precontact archaeological sites. The Aboriginal heritage impact assessment process is outlined including guidelines for identifying Aboriginal heritage values (social, historic, scientific) associated with sites and landscapes and guidelines for assessing their significance.

Secretariat of the Convention on Biological Diversity. (2004). *Akwe: Voluntary Guidelines for the Conduct of Cultural, Environmental and Social Impact Assessment regarding Developments Proposed to Take Place on, or which are likely to Impact on, Sacred Sites ad on Lands and Waters Traditionally Occupied or Used by Indigenous and Local Communities*. Montreal, QC: Secretariat of the Convention on Biological Diversity.

These guidelines are for the conduct of cultural, environmental and social impact assessment for developments proposed which may impact sacred sites, lands and waters traditionally occupied or used by indigenous peoples. The guidelines are a tool offering impact assessment procedures and methodologies and are organized into: procedural considerations, integration of cultural, environmental and social impact assessments as a single process, and general considerations.

World Bank Group (1991). Environmental Assessment Sourcebook 1991 and Updates. Available at: http://lnweb18.worldbank.org. Accessed: 9 February 2005.

This source book is intended to provide assistance for all those involved in Environmental Assessment. It amalgamates World Bank policies and procedures, guidelines, precedents and "best practice" regarding the environment. Chapter 3 (Social and Cultural Issues in Environmental Review) examines key issues in social analysis related to environmental review. Guidelines for Environmental Assessment are provided for World Bank projects. The inclusion of local knowledge and the contribution of indigenous peoples are emphasized.

A.4 General

A.4.1 Northern - General

Abele, F. (1997). Traditional Knowledge in Practice. *Arctic,* 50(4), iii-iv.

Previous studies by the Department of Fisheries and Oceans (DFO) identified broad whitefish (*Coregonus nasus*) migration routes extending from coastal bays through the Mackenzie Delta and upstream to the Peel and Arctic Red River systems. Field investigations during these projects identified upstream locations in the Peel and Arctic Red River systems as important spawning sites for the anadromous stock of broad whitefish. The information generated by the DFO studies were presented to a mixed audience of Inuvialuit, Gwich'in and Sahtu representatives during the Broad Whitefish Workshop held in Inuvik on March 16-17, 1994. Several experienced fishermen from the Mackenzie Delta informed those present at the workshop of their observations and beliefs that localized populations of broad whitefish spawn in areas within the ISR, as well as the Peel and Arctic Red River sites identified. Specific mention was made regarding sites, timing of fish use of these sites, and fish reproductive status. One such site - Whitefish Bay - was mentioned numerous times, and the subject of considerable discussion. Following a modest traditional knowledge study focusing on the identification of locally presumed broad whitefish spawning sites within the Inuvialuit Settlement Region, it was decided to conduct an onsite investigation in an attempt to verify the presence/absence of spawning fish at the Whitefish Bay location. This study is a ground-truthing of the results of the traditional knowledge study using western science.

Arctic Biological Consultants, Stewart, D., Stewart, B., & Ratynski, R. (1996). *A Bibliographic Database for Coastal Zone Planning in the Cumberland Sound and Yukon North Slope Areas of Arctic Canada*. Winnipeg, MB: Fisheries and Oceans Canada.

This computerized bibliographic database was intended to facilitate research into integrated coastal zone management in the Cumberland Sound and Yukon North Slope areas. It consists of two computer databases which were prepared using Pro-cite (v. 2) bibliographic software. The Cumberland Sound database contains over 600 bibliographic records and the Yukon North Slope

over 1800, each with information on its scope of coverage and availability from library collections. Many of these records also include abstracts. This document describes: 1) the scope and content of the bibliographic databases, 2) how to use them, and 3) how they can be updated. The reference material identified both popular and scientific literature, published and unpublished report, films, and audio tapes. While the focus of this work was on the cultural and natural subject areas, references that dealt with the social, economic and legal aspects of natural resource use or archaeology were included in the bibliographies.

Aurora College. (1996). *Traditional Knowledge: An Implementation Workplan for Aurora College*.

This document outlines a practical and efficient framework to guide Aurora College in working with Aboriginal peoples to increase the use of traditional knowledge in its programs and services. It outlines the College's vision for traditional knowledge in its programs, a number of initiatives to be undertaken, challenges to implementing changes, and an implementation schedule for 1996-1999.

Bielawski, E. (1992). Inuit Indigenous Knowledge and Science in the Arctic. *Northern Perspectives,* 20, (1).

This article discusses the different 'ways of knowing' between Inuit and western scientists.a

Brockman, A. (1991). *Report of the Traditional Knowledge Working Group*. A. Legat (Ed.). Yellowknife, NWT: Department of Culture and Communications, Government of the Northwest Territories.

This report summarizes the findings of the Working Group on Traditional Knowledge, established by the Government of the Northwest Territories in 1989. Traditional knowledge is explained as knowledge that derives from, or is rooted in the traditional way of life of Aboriginal people. Traditional knowledge is the accumulated knowledge and understanding of the human place in relation to the universe. This encompasses spiritual relationships, relationships with the natural environment and the use of natural resources, relationships between people, and, is reflected in language, social organization, values, institutions and laws. This report examines the current and potential use of traditional knowledge, provides principles for its preservation and use, and identifies obstacles to its. A series of 20 recommendations to the territorial government related to increasing the influence of traditional knowledge in northern society are listed.

Burgess, P. (1999). *Traditional Knowledge: A Report Prepared for the Arctic Council Indigenous People's Secretariat, Copenhagen*. Copenhagen: Arctic Council Indigenous People's Secretariat.

This report examines the 'concept' of traditional knowledge and the terms associated with it. Programs and research projects related to traditional knowledge currently underway in the Arctic are described, along with a discussion of how traditional knowledge is currently being used in management regimes, with particular reference to the management of renewable resources. A bibliography of written materials that are related to traditional knowledge is provided.

The authors note that a considerable rhetoric of acceptance regarding traditional knowledge has become widespread, but there is a gap between rhetoric and reality. In fact there is a good deal of confusion regarding traditional knowledge: what it means, who has it, who should have access to it, what relevance it has in the Arctic today, whether traditional knowledge has relevance for the 'management' of renewable resources in the Arctic, the suitability or even possibility of attempting to 'incorporate' or 'integrate' traditional knowledge into western science, or even if that is desirable, whether 'integration' will ultimately mean 'assimilation'. What role, if any, does traditional knowledge have for the practice of co-management, who 'controls' traditional knowledge, do holders of traditional knowledge hold intellectual property rights over their knowledge and customs, or has (as some commentators have suggested) traditional knowledge

become such a sacred cow that it is beyond all criticism? These and other relevant issues are discussed.

Canadian Heritage - Parks Canada. (1995). Aulavik National Park - Interim Management Guidelines Responsibility.

These Interim Management Guidelines for Aulavik National Park reflect the departmental direction of Parks Canada. The guidelines were developed co-operatively and they lay out a future of cooperative management for the park. The integration of ecosystem management and of cultural resource management is stressed. A research program will follow which will use knowledge from the scientific and the oral traditions. Research on the cultural environment of Aulavik National Park will be integrated with the research on the natural environment. Knowledge from various sources will be used, including the scientific literature, oral histories, archives, traditional knowledge, and field studies. Parks Canada will use Inuvialuit knowledge, including traditional ecological knowledge, in park conservation, management and interpretation.

Cournoyea, N. (1998). Traditional Knowledge and the Inuvialuit Experience in Land Claims. Conference Presentation, *Community Development from the Inside Out: A Conference Exploring the Incorporation of Traditional Knowledge into Community Development, Edmonton, AB, August 21-22, 1998*. Calgary, AB: Arctic Institute of North America.

Cournoyea provides a list of seven suggestions for "incorporating" traditional knowledge into community development: 1) the creation of community and regional management bodies (e.g., Hunters' and Trappers' Committees), 2) Wildlife and Conservation Management Plans (which, in the Inuvialuit Settlement Region constitute a continuous and dynamic process where community groups develop community conservation plans), 3) the addition of traditional knowledge to curriculum development, 4) the collection, archiving, transcription and translation of any existing traditional knowledge tapes and interviews, 5) revitalization and reintroduction of Inuvialuktun, 6) community-based ecosystem monitoring and, 7) targeted traditional knowledge studies to augment information on various species.

Difrancesco, R. (1996). The Crown, Territorial Jurisdiction, and Aboriginal Title: Issues Surrounding the Management of Oil and Gas Lands in the Northwest Territories. *Energy Studies Review,* 8(3), 232-249.

This article provides a brief summary of the legislative and regulatory context of oil and gas development in the Northwest Territories, including constitutional and land claim processes. The process of community consultation that took place during the Berger Inquiry is noted as establishing a standard in which "the social, economic and cultural systems [of Aboriginal people], and the northern environment, were not to be brushed aside in the pursuit of profit (p. 236)."

Duerden, F. & Kuhn, R. (1998). Scale, context, and application of traditional knowledge of the Canada north. *Polar Record,* 34(188), 31-38.

The application of traditional ecological knowledge (TEK) to land and resource management is critically examined and a typology relating scale, user group, and the transformation of knowledge is developed. Of the many challenges facing the incorporation of TEK in resource management initiatives, perhaps the greatest is the recognition of the appropriateness of scale. The conclusions reached in this paper reaffirm the notion that scale and context are key components in maintaining the validity and integrity of TEK. The primary role of TEK appears to be with providing the most valid and intelligible interpretations of local geographies and prescribing locally appropriate resource management strategies. The authors note that a major problem is identifying appropriate frameworks for the use of traditional knowledge into complex regulatory processes (such as environmental impact assessment).

Ferguson, M. & Messier, F. (1999). Collection and Analysis of Traditional Ecological Knowledge about a Population of Arctic Tundra Caribou. *Arctic,* 50(1), 17-28.

The authors developed a method, with advice from Inuit, to collect Inuit knowledge about historical changes in a caribou population. This paper describes their method, which utilizes traditional ecological knowledge to produce a regional history of changes in wildlife distributions, densities and ecology. The concept and terminology of "traditional ecological knowledge" is defined in the introduction.

Ferguson, M., Williamson, R. & Messier, F. (1998). Inuit Knowledge of Long-term Changes in a Population of Arctic Tundra Caribou. *Arctic,* 51(3), 201-219.

The authors present a history of caribou population changes based on Inuit traditional ecological knowledge and show how indices of changes in population abundance can be derived from Inuit knowledge. Inuit knowledge is compared with reports by non-Inuit, and Inuit knowledge proved to be more complete than the written record both temporally and spatially. The authors also examine how caribou populations are conceptualized by Inuit versus biologists and how these differing concepts have implications for the accuracy of data on caribou abundance.

Fisheries and Oceans Canada. (2002). A Guide to Integrated Coastal Zone Management in Canada (Brochure). Available at: http://www.dfo-mpo.gc.ca. Accessed: 12 April 2005.

This document explains Canada's policy for how integrated management should occur in Canadian marine waters. Integrated management can facilitate the impact assessment process. Stakeholder input, including Aboriginal organizations, is identified as an important source of information contributing to integrated management planning.

Freeman, M. (1992). The Nature and Utility of Traditional Ecological Knowledge. Northern Perspectives 20(1). Available at: http://www.carc.org/pubs/v20no1/utility.htm. Accessed: 6 May 2001.

Traditional ecological knowledge systems seek to understand and explain the workings of ecosystems in a holistic, rather than reductionist, manner. It has been recognized to have relevance for sustainable resource management and environmental impact assessment. Traditional ecological knowledge-based systems already possess base-line data sets that address gaps in scientific knowledge. Three northern cases illustrating the efficacy of traditional ecological knowledge are presented. The author concludes that the quantity of published literature on the subject shows that the application of traditional ecological knowledge to environmental assessment and management should be taken seriously.

GeoNorth Ltd. (2002). *Traditional Knowledge Respecting Water Resources and Management in the Mackenzie Basin.* Consultant's report prepared for Jack Van Camp, Mackenzie River Basin Board Secretariat, Fort Smith, NWT.

The report summarizes the availability and nature of Traditional Ecological Knowledge (TEK) in the Mackenzie River Basin for the purposes of assisting the Mackenzie River Basin Board in determining whether additional collection of TEK is necessary for producing a State of the Aquatic Ecosystem Report (SAER). Recommendations for including traditional knowledge in the SAER are provided, including guidelines for assisting in the incorporation of traditional knowledge.

Government of the Northwest Territories. (1993). *Response by the Government of the Northwest Territories to the Report of the Traditional Knowledge Working Group.* Yellowknife, NWT: Department of Renewable Resources.

This report presents a plan which outlines the role of the Government of the Northwest Territories and its commitment to traditional knowledge. It includes responses to the 20 recommendations of the Traditional Knowledge Working Group and a traditional knowledge policy.

Government of Northwest Territories, Department of Culture and Communications. (1991). *Report of the Traditional Knowledge Working Group.* Yellowknife, NWT.

This report was created because at the 30th annual meeting of the Canadian Commission for UNESCO (the United Nations Educational, Scientific and Cultural Organization) in Yellowknife in 1988, the Leader of the Government of the Northwest Territories, Dennis Patterson, acknowledged that there is a "wide spectrum of areas where traditional knowledge may have an influence on government policy and programs." He established the Working Group on Traditional Knowledge in October 1989 to define traditional knowledge, examine its current and potential use, and identify obstacles and solutions that will increase its influence in northern society.

Hobson, G. (1992). Traditional Knowledge IS Science. *Northern Perspectives,* 20(1), 2.

This paper supports the author's statement that traditional knowledge is science and argues for improved communication and co-operation between southern scientists and holders of traditional knowledge. Traditional knowledge is the accumulated knowledge and understanding of the place of human beings in relation to the world in both an ecological and spiritual sense. It states that it is necessary to develop a framework that allows traditional and scientific knowledge to interact in a complementary fashion.

Inuit Circumpolar Conference. TEK Bibliography. Available at: http://www. inuitcircumpolar.com.

This bibliography is an online resource and contains a listing of traditional knowledge references in the Inuit Circumpolar Conference's library.

Kuhn, R., Duerden, F., & Clyde, K. (1993). Government Agencies and the Utilization of Indigenous Land Use Information in the Yukon. *Environments,* 22(3), 76-84.

The authors examine the use of indigenous land use information by nineteen government agencies in the Yukon Territory. A questionnaire was used to assess the perceptions of, and attitudes towards the utility of indigenous land use information by government employees. Constraints and barriers were identified against the use of such information including issues of accessibility and quality of information, the absence of formalized processes, poor understanding of such information, and difficulties with quantification.

LegendSeekers. (2000). *An Assessment of Documented Yukon First Nations Traditional and Local Knowledge and Perspectives on the Impacts of Climate Change within the Yukon Territory and Northern British Columbia*. Report prepared for the Northern Climate ExChange Gap Analysis Project, Whitehorse, YK.

This report summarizes baseline research conducted for the Northern Climate ExChange Project of Yukon College, as part of their report on "The Assessment of the State of Knowledge of the Impacts of Climate Change on Canada's North". The research consisted of a review of publications based on Yukon First Nations oral history to determine traditional knowledge on the climate. Although specific references are found to weather, climate, and changing conditions throughout oral histories, the authors conclude that there is an immediate need to conduct further oral history research aimed specifically at collecting traditional knowledge of changing climate and weather systems.

Riedlinger, D. (2001). *Community-based Assessments of Change: Contributions of Inuvialuit Knowledge to Understanding Climate Change in the Arctic*. Thesis submitted for the degree of Master of Natural Resource Management, Faculty of Graduate Studies, University of Manitoba.

This thesis is based, partially, on the collaborative research project Inuit Observations of Climate Change (1999-2000) in Sachs Harbour, Western Canadian Arctic. The methods used in that project are described. Riedlinger describes how local Inuvialuit knowledge and community

assessments can provide observations, predictions and explanations of climate change at scales and in contexts currently underrepresented in climate change research. The contributions of traditional knowledge to understanding climate change in the Canadian Arctic are explored and a conceptual framework is proposed for finding common ground between traditional knowledge and scientific knowledge, emphasizing five areas of convergence between them.

Wenzel, G. (1999). Traditional Ecological Knowledge and Inuit: Reflections on TEK Research and Ethics. *Arctic,* 52(2), 113-124.

Wenzel examines how traditional ecological knowledge research has been utilized in cultural studies of the Inuit and concludes that traditional ecological knowledge is a political, as well as scientific and cultural, concern. He identifies three problems with traditional knowledge research in the North: 1) the analysis and interpretation of traditional ecological knowledge must be subject to the same rules as that of other forms of information, 2) traditional ecological knowledge requires a more ethical treatment and, 3) intellectual property rights initiatives to protect traditional ecological knowledge are not likely to serve the long-term interests of the Inuit or researchers.

West Kitikmeot Slave Study (2000). Dogrib Traditional Knowledge: Relationship between Caribou Migration Patterns and the State of Caribou Habitat. Available at: http://www.wkss.nt.ca. Accessed: 20 December 2004.

This project recorded traditional knowledge about caribou movements and habitat and the relationship between the Dogrib people and the caribou. The elders indicated that they feel that scientific research does not provide enough information to properly manage wildlife and that traditional knowledge is important for management. The elders did not claim to predict how caribou might react to mines and other development activities, although they did make observations about changes in caribou behaviour as a result of such activities.

Winkelaar, F. (1990). *The Science Institute of the Northwest Territories and the Westernization of Traditional Knowledge*. Ottawa, ON: Department of History, Carleton University.

This paper investigates some of the characteristics of scientific research in northern Canada from a historical perspective. A brief history of the Science Institute of the Northwest Territories is followed by an historical examination of attitudes toward traditional knowledge. The conclusion reached is that, while the research establishment in the North, as represented by the Science Institute, has developed a policy protective of traditional knowledge, the methods used in northern research and the political motives behind the resurgence of traditional culture combine to encourage the accelerating westernization of traditional knowledge.

A.4.2 Canadian - General

Abbott, K. (2001). Co-management in Canada. Available at: http://www.firstpeoples.org/land_rights/canada. Accessed 7 July 2003.

This document describes the co-management trends, ideas and arrangement in Canada. The Royal Commission on Aboriginal People's recommendations on environmental impact assessments are discussed. Environmental impact assessments may be ethnocentric and can potentially disregard or alienate Aboriginal communities. Co-management boards should be authorized to conduct environmental impact assessments, the contents and procedures of which must allow for effective Aboriginal participation. The importance of traditional knowledge in co-management is also discussed.

Bill, L. (1997). Traditional Knowledge Research: Uses, Effects, Applications and Choices. Proceedings of the Third National Science Meeting, January 21-25, 1997, Saskatoon, Saskatchewan. The

Ecological Monitoring and Assessment Network, Environment Canada. Available at: http://www.eman-rese.ca/eman. Accessed: 13 December 2004.

Bill compares the medicine wheel framework for considering traditional knowledge that was applied by the Northern River Basins Study to research approaches utilized by other traditional knowledge researchers. Eight traditional knowledge research projects are assessed with regards to the approach utilized by the investigators, the intent and purpose of the research, the information collected and the utilization of the information. The eight research projects are compared to the traditional knowledge component of the Northern River Basins Study, which utilized a medicine wheel framework as a research design.

Brascoupé, S. & Endemann, K. (1999). *Intellectual Property and Aboriginal People: A Working Paper*. Ottawa, ON: Research and Analysis Directorate, Department of Indian Affairs and Northern Development, and Intellectual Property Policy Directorate, Industry Canada.

This paper outlines current Canadian intellectual property legislation as it relates to Aboriginal people in Canada, and provides a general review of the implications of this legislation for protecting the traditional knowledge of Aboriginal people.

Corsiglia, J. & Snively, G. (1997). Knowing Home: NisGa'a traditional knowledge and wisdom improve environmental decision-making. *Alternatives Journal,* 23(3), 22-27.

A general overview of what traditional knowledge is, is given. Then the debate about whether or not traditional ecological knowledge can contribute to Western scientific knowledge is described briefly. The NisGa'a people of British Columbia live in the Nass River Valley and continue to preserve the culture that connects them to their homeland. The NisGa'a traditional science practitioner is trained to observe nature and behave with respect (p. 24) and function as an observer (p. 25). Examples are offered within the context of salmon fishing. A traditional NisGa'a wisdom story is related and interpreted in terms of relevance for resource management (p. 25-6).

Ellis, D. (2001). *Ideas to expand the use of Aboriginal Knowledge and Community Knowledge in Wildlife in Canada*. Status reports prepared by the Committee on the Status of Endangered Wildlife in Canada, Whitehorse, YK. Prepared for B. Smith, Project Biologist, Canadian Wildlife Sservice, Environment Canada.

This discussion paper was prepared to provide practical and constructive ideas to help the Committee on the Status of Endangered Wildlife in Canada meet new obligations and opportunities to include Aboriginal traditional knowledge and community knowledge in the assessment of species of wildlife at risk, arising from the pending National Species at Risk Legislation.

McDonald, M., Arragutainaq, L. & Novalinga, Z. (1997). *Voices from the Bay: Traditional Ecological Knowledge of Inuit and Cree in the Hudson Bay Bioregion*. Ottawa, ON: Canadian Arctic Resources Committee.

This book summarizes the results of a three-year study of the traditional ecological knowledge of Inuit and Cree in the Hudson Bay region. The study was initiated by the environmental committee of Sanikiluaq in response to Cree and Inuit suggestions that traditional ecological knowledge could contribute to a cumulative effects assessment of resource developments in the area. The information gained was to assist in implementing the principle of sustainability and to assist in better, more environmentally and socially responsible decision-making.

Moller, H., Berkes, F., O'Brian Lyver, P. & Kislalioglu, M. (2004). Combining Science and Traditional Ecological Knowledge: Monitoring Populations for Co-management. *Ecology and Society,* 9, 2-3. Available at: http://www.ecologyandsociety.org.

The authors evaluate the ways of combining science and traditional ecological knowledge to monitor wildlife populations in resource management. They draw on case studies from New Zealand and Canada to illustrate traditional management systems and complementary uses of scientific and traditional ecological knowledge for population monitoring. Five areas of complementarities between scientific and traditional ecological knowledge are presented for population monitoring.

Northern River Basins Study Board. (1996). *Northern River Basins Study Report to the Ministers 1996*. Edmonton, AB: Northern River Basins Study Board.

This report summarizes the key findings and policy recommendations of the Northern River Basins Study (NRBS), a benchmark assessment of water quality in the Peace, Athabasca and Slave River basins. Section 3.4 discusses the results of the traditional knowledge component of the NRBS, that was to determine existing native traditional knowledge that could enhance the physical science in all study areas of inquiry.

Turner, N., Boelscher Ignace, M. & Ignace, R. (2000). Traditional Ecological Knowledge and Wisdom of Aboriginal Peoples in British Columbia. *Ecological Applications,* 10(5), 1275-1287.

This paper focuses on the characteristics and applications of the Traditional Ecological Knowledge and Wisdom (TEKW) of Aboriginal peoples in British Columbia, Canada. The features that comprise TEKW are discussed: knowledge of ecological principles, use of ecological indicators, adaptive strategies for resource harvesting and monitoring, systems of knowledge acquisition and transfer, respectful interactive attitudes and philosophies, identification with ancestral lands, and recognition of the power and spirituality of nature. The authors feel that for appropriate incorporation of TEKW into current ecosystem-based management strategies, its complete context must be recognized and respected. A case study of ecological and cultural knowledge of traditional root vegetables is used to illustrate how this can be accomplished.

A.4.3 International - General

Berkes, F., Colding, J. & Folke, C. (2000). Rediscovery of Traditional Ecological Knowledge as Adaptive Management. *Ecological Applications,* 10(5), 1251-1262.

This paper emphasizes the role of local or indigenous communities in using traditional ecological knowledge (TEK) to respond to and manage the functions and processes of complex systems (i.e. the role of TEK for "adaptive management"). Management practices based on local ecological knowledge are identified. The social mechanisms (e.g. world view, values) behind these practices are identified and organized. Traditional knowledge systems are evaluated for the insights they provide for the qualitative management of resources and ecosystems and parallels to adaptive management. It is concluded that adaptive management may be considered the "scientific analogue" of TEK, therefore TEK can inspire adaptive management solutions.

Center for World Indigenous Studies, Morning Star Institute and the Northwest Indian Applied Research Institute. (2000). A Treaty Among Indigenous Nations on the Protection of Native Peoples' Cultural Property Rights: An Exercise of Indigenous National Sovereignty and International Relations. Briefing Memorandum for Participants at *Protecting Traditional Knowledge Conference, February 23-26, 2000, Vancouver, BC.*

This briefing memorandum provides information on the results of a gathering of Indian scholars, political leaders and activists in 2000. This group recognized that the indigenous nations of the world posses the power to institute and enforce laws among their peoples and would benefit by formulating their own international law in the form of a Treaty on Native People's Cultural Property Rights.

Glenn, R. (2000). Traditional Knowledge, Environmental Assessment, and the Clash of Two Cultures. In S. Stephens (Ed.), *Handbook for Culturally Responsive Science Curriculum*. Fairbanks, AK: Alaska Native Knowledge Network.

This short article was included in the Alaskan Handbook for Culturally Sensitive Science Curriculum as an example of involving cultural experts in the classroom. The article is relevant for the issue of developing traditional knowledge guidelines for environmental impact assessment, however, as it presents an individual Inupiat's view on the experience of sharing knowledge with others. The author describes Inupiat traditional knowledge and explains why Inupiat would share such knowledge, despite stigma, misunderstandings, and bad experiences. The author also discusses how knowledge sharing *should* take place, cautioning that not all community members are experts. Because the Inupiat have a culture of consensus, agreement is mandatory on every item passed as traditional knowledge.

Hansen, S. & VanFleet, J. (2003). *Traditional Knowledge and Intellectual Property.* Washington, D.C.: American Association for the Advancement of Science.

This handbook represents a step forward in the realization of Article 27 of the Universal Declaration of Human Rights as it attempts to explain the implications and possible solutions to human rights issues surrounding intellectual property for traditional knowledge holders. This handbook is designed to make intellectual property protection issues and options more understandable to traditional knowledge holders and human rights organizations and legal professionals working with local and indigenous communities. This resource will help traditional knowledge holders identify potentially applicable protection mechanisms in the current intellectual property rights regime.

Mauro, F. &. Hardison, P. (2000). Traditional Knowledge of Indigenous and Local Communities: International Debate and Policy Initiatives. *Ecological Applications*, 10(5), 1263-1269.

The authors examine international law and policy that are defining the role of traditional and indigenous knowledge in biodiversity management and conservation. Indigenous rights in international law are discussed, as is the Convention on Biological Diversity, and other global conventions and 'soft laws'. The securement and recognition of indigenous rights is an ongoing struggle but implementing equitable principles for indigenous and local community involvement in biodiversity management does not need legislative grounds (p. 1267).

MOST/NUFFIC (2002). Database of best practices on indigenous knowledge. MOST Clearing House on Best Practices. Available at: http://www.unesco.org/most/bpikreg.htm. Accessed: 16 December 2004.

This on-line database contains examples of successful projects illustrating the use of local and indigenous knowledge in the development of cost-effective and sustainable survival strategies, covering Africa, Asia-Pacific, Europe, North America, Latin America, and the Caribbean. It also includes a geographical and thematic index and an index of institutions acting as indigenous knowledge resource centres.

Secretariat of the World Intellectual Property Organization. (2000). Matters Concerning Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore. *WIPO General Assembly, Twenty-Sixth (12th Extraordinary) Session, Geneva, September 25 to October 3, 2000*. Geneva, Switzerland: World Intellectual Property Organization.

These conference proceedings discuss intellectual property issues regarding the protection of traditional knowledge. These issues are grouped into four categories: 1) terminological and conceptual issues, 2) standards concerning the availability and scope and use of intellectual

property rights in traditional knowledge research, 3) criteria for the application of standards and, 4) the enforcement of rights in traditional knowledge.

Stephens, S. (2003). *Handbook for Culturally Responsive Science Curriculum*. Fairbanks, AK: Alaska Native Knowledge Network.

This handbook is the result of the development of a standards-based, culturally relevant curriculum that integrates indigenous and western knowledge around science topics. With regards to traditional knowledge and impact assessment, this document is relevant in that it is an example of how indigenous and western knowledge can be integrated in a culturally appropriate way to create greater depth, breadth and significance of knowledge. Furthermore, a standards-based system was developed to correlate indigenous knowledge with the Alaska science standards for the curriculum. Culturally relevant assessment of cultural behavior, knowledge and values is also discussed.

Stoffle, R., Halmo, D., Evans, M., & Olmsted, J. (1990). Calculating the Cultural Significance of American Indian Plants: Paiute and Shoshone Ethnobotany at Yucca Mountain, Nevada. *American Anthropologist,* 92(2), 461-432.

This article applies a quantitative plant evaluation model to field data from the Yucca Mountain, Nevada, ethnobotany study to explore the utility of the model for evaluating the cultural significance of botanical resources to contemporary American Indian peoples. The authors conclude that although it is difficult to combine Western scientific and Native American cognitive reasoning into one model of cultural significance, the model is successful for determining the cultural significance of plants from both a resource policy and ethnographic standpoint. They recommend that similar models be developed for calculating the significance of other cultural resources.

World Commission on Environment and Development (WCED). (1987). *Our Common Future*. Oxford, UK: Oxford University Press.

This report is a response to a call by the General Assembly of the United Nations for a 'global agenda for change'. The WCED, led by Gro Harlem Brundtland, Prime Minister of Norway, was tasked with examining the critical environment and development problems on the planet and formulating realistic proposals to solve them. Environmental sustainability was a key focus of the WCED's work.