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# Revisiting Traditional Land Use and Occupancy Studies: Relevance and Implications for Resource Management in Alberta

**Laura MacKinnon, Caesar Apentik, and Michael P. Robinson**

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For copies of this or other SFM publications contact:

Sustainable Forest Management Network
G208 Biological Sciences Building
University of Alberta
Edmonton, Alberta, T6G 2E9
Ph: (780) 492 6659
Fax: (780) 492 8160
http://www.biology.ualberta.ca/sfm

# Revisiting Traditional Land Use and Occupancy Studies: Relevance and Implications for Resource Management in Alberta

## Background to the study

The use of traditional knowledge and institutions as a formal research paradigm in development policies, especially resource and environmental management, is fairly recent. However, interest in the topic has its origins in anthropology and has for a long time remained the domain of anthropologists. Most of the early works on the subject were geared towards the construction of models and theories that could help outsiders (Westerners) to understand how traditional societies function, and why they function in certain ways. Traditional knowledge was not studied to understand it's role in the socio-economic and political development of traditional societies. Traditional knowledge, which is grounded in social institutions and mediated by social practices, has been regarded as superstitious or non-scientific, and consequently of no practical use for resource and environmental management, or development in general. Thus the power of Western science over traditional and local generated knowledge became the dominant paradigm in deciding development policies in traditional societies and has continued to remain the dominant paradigm.

Today, many ecological models such as gradual and linear change, homeostatic regulation systems, vegetation succession and climax, population modeling, and ecosystem functioning continue to exert a tremendous influence on modern resource and environmental management. Leach (1997) argued that these ecological concepts are rooted in the notion of equilibrium and functional order of the ecosystem. Solutions to most problems in land use and resource management issues are sought within these mainstream equilibrium models. Although this approach is generally accepted, both new and ancient streams of thought are challenging the basic premises of the

This study is the collaborative work of two students, Laura MacKinnon (Masters student, Faculty of Environmental Design, University of Calgary) and Ceasar Apentiik (Phd candidate, Resources and Environment Program, University of Calgary) supervised by Mike Robinson, Executive Director of the Arctic Institute of North America, and Monique Ross, Research Asssociate with the Canadian Institute of Resources Law. (Mail for all three authors may be directed to Arctic Institute of North America, The University of Calgary, 2500 University Drive N.W., Calgary, Alberta, Canada T2N 1N4). The research is funded by Network of Centres of Excellence for Sustainable Forest Management. The Network of Centres of Excellence **(**NCE) provides networking through partnership among researchers, communities, governments and the corporate world. In the past three years the Network has brought researchers from diverse fields (physical scientists, social scientists, policy makers and local community members) together to work towards developing strategies, and improving knowledge and technologies for the sustainable management and conservation of resource regimes within the Boreal Forest.

equilibrium/functional models. This challenge is not a debate over the validity of these concepts and the contribution of ecological science to resource management issues. Neither is it a debate over the untheorized and romantic view that traditional approaches to land use are always wise, fair and sustainable, and have remained unchanged over the ages. The argument or dispute regards the assumption that these ecological models are value-free in their approach to resource management problems, and the reluctance of resource managers to embrace other forms of knowledge that do not conform to these orthodox ecological models. The argument is also about the boundaries erected by Western science to suppress or silence other forms of wisdom, and the need to seek an inclusive approach to knowledge generation and application.

In this paper, we use data from field work conducted over a three month period with representatives from government agencies (Natural Resources Canada, Department of Alberta, Department of Aboriginal Affairs, Community Development Department of Alberta), industry (forestry and petroleum), and researchers in academia whose works are connected to forestry and resource management. This data is used to examine the dynamics and tensions between the main stakeholders (First Nations, government of Alberta, and industry) in the application of traditional land use and occupancy studies (TLUOS) in the forestry industry in particular, and resource management in general. The study is thus a follow-up to assess the impact, implication and application of two TLUOS that have been conducted in two First Nation communities over the last decade. The focus of this paper is policy-making bodies in industry and government; subsequent research is planned to explore the perceptions of First Nations communities regarding the impact of TLUOS. The data gathered indicates that while the conventional debate of validity or reliability of Western science versus traditional wisdom contributes to the tension between the various stakeholders, there are many other dynamics. The tensions are complicated by interactive factors, which are both internal and external to the studies themselves, including: technical and methodological problems; historical, cultural and political factors; and the dynamics of the power discourses between local communities, the resource industry and government.

## First Nations View of Sustainable Land Use and Resources Management

The past, present and future socio-economic and political well-being and development of many First Nations is inextricably connected to the land, and associated rights over land and it resources. Relationship to, and use of, the land in these communities is historically, culturally and legally connected to crucial questions. These

questions relate to First Nations' worldview and systems of thought regarding the land, how to use it, and management and conservation strategies. Studies demonstrate that First Nations land use practices and resource management regimes are deeply embedded in the notion of sustainability (Brody 1976; Cox 1973; Berkes 1982; Feit 1973; Johnson 1992). These land use practices allow communities to remain economically and socio-culturally viable, while at the same time ensuring that there is a secure and stable foundation for the well-being of future generations. Thus the notion of sustainability among First Nations ensures that future generations will not be disadvantaged by present land use and resource procurement practices.

Indigenous peoples' understanding of sustainability has been acknowledged by both scholars ( Schumacher 1973; Sillitoe 1998; Zwahlen 1996; Wavy 1993) and various international and national bodies. The definitions of sustainable development by the Brundtland Commission blueprint of sustainable development (World Commission on the Environment and Development (WCED), 1987), Agenda 21 (from the 1992 United Nations Earth Summit in Rio de Janiero), and the Desertification Convention all have notable parallels to First Nations' understanding of the term. In particular the WCED argues for co-management, co-operative management or appropriate sharing of responsibilities for resources management between various stakeholders (local communities, government and industry) (Berkes 1995). The WCED call recognizes the interactive and complex dynamics of natural resource management. Consequently it sees solutions to present environmental crises and tensions between various stakeholders through developing partnership and collaboration between local communities and external agents. In addition, the need for traditional knowledge and the involvement of indigenous peoples in sustainable resource management is recognized by the Rio Declaration, the Convention on Biodiversity, the Forest Stewardship Council, Canada's National Forest Strategy and the Canadian Council of Forest Ministers (Ross and Robinson 1997; Institute on Governance 1998; Higgins 1998). For example, Principle 22 of the Rio Declaration reads:

> Indigenous people and their communities and other local communities have a vital role in environmental management and development because of their knowledge and traditional practices. States should recognize and duly support their identity, culture and interests and enable their effective participation in the achievement of sustainable development. (UNCED 1992)

First Nations see themselves as custodians of the land, sometimes called 'Mother Earth.' They also view the ecosystem as one; everything created by the Great Spirit is part of a whole - rocks, trees, water, animals, birds, humans (Ghostkeeper 1998; Notzke 1994; Rochon 1993). For instance, many First Nations believe that everything including the human being has four aspects - mind, body, emotions and spirit - and the daily challenge of life is to balance these four aspects as a necessary step towards wellness and happiness (Ghostkeeper 1998). Embedded in this belief is the notion that nature is a "being" and humans are part of that being. First Nations traditional resource utilization, land use regimes, and conservation strategies are based on this cosmology and system of thought. Thus they are part of nature and, as such, emphasize the importance of seeking harmony and balance with all living things. First Nations learn to achieve this harmony and balance with Mother Nature through cultural mediums such as ritual and religious ceremonies, myths, songs, local oral histories, stories, proverbs, and other protocols including traditional institutions that govern and regulate the use of land and resources (Ghostkeeper 1998; Gunn et al 1988; Berkes et al 1991). Their beliefs and systems of thought regarding the land have been systematically expressed in their resistance to introduced resource management regimes by external agencies, which usually fail to conform to First Nations notion of sustainability.

First Nations concept of sustainability is rooted in their culture and system of thought, with its own epistemological order (Barsh 1992). The views of western science on land use and resource sustainability are also rooted in a culture and system of thought, one that can be traced to the European Enlightenment, with it's emphasis on reductionism, observation and experimentation, and reason and rationality (Kuhn 1996). Corsiglia and Snively (1997:22) make the following observation:

> The conceptual roots of traditional ecological knowledge relate more to the timeless mainstream of human experience than to the recent traditions of Western science, which grew up in the service of empire building and placed great emphasis on permanent records, mathematics, navigational systems and broad portable understandings.

Gunn et al (1988) point out that each system developed for different reasons: Aboriginal peoples' ecological knowledge system is based on survival and success in hunting, gathering, fishing, trapping, and traveling, while the scientific ecological knowledge system is based on establishing cause-and-effect relationships and the accumulation of

knowledge. In commenting on the different approaches to observation (which is key to both systems), Gunn et al (1988:25) state:

> there is not the narrow focus on collecting specific observations to answer a certain question which so often motivates scientific information gathering. Hunters' observations are loosely organized in an informal and flexible system which may equally include a spiritual or mythical interpretation.

The perception of nature in secular rather than holistic terms by Western scientific resource managers thus runs contrary to the First Nation perception of the land being sacred and alive. This fundamental difference in worldview has been one of the major causes of conflict regarding land use and management between resource managers, conservationists, scientists and government on one hand, and First Nations communities on the other hand.

In the last two decades, this difference and tension between the various stakeholders or resource users has initiated renewed interest in 'the blending and the integration' of indigenous knowledge and institutions in land use and resource management. This surge is attested to by the growing literature on many facets of indigenous societies' practices such as ethnoecology, ethnomedicine and ethnopharmacology, ethnojustice, ethnobotany, ethnoconservation **(**Howard et al. 1994; Wolfe et al. 1992.**)**. Some of these studies have no doubt contributed considerably to our present knowledge and understanding of policy debates regarding First Nations land use practices and resource management. However, many of these studies tend to be preoccupied with the unproductive and endless debate over the 'integration' of the two forms of knowledge. In the last two years, the idea of 'integration' is beginning to metamorphosize into terms such as "blending and supplementing' the two approaches to resource management. While this is a positive shift, in their effort to link both forms of knowledge in resource management, there is still the tendency by most researchers to frame local ideas in terms that are familiar to Western intellectuals rather than to First Nations communities (or at least into terms that are meaningful to all parties) (Cruikshank 1984). Fairhead and Leach (1996:7) eloquently caution against this approach, in that "to consider local representation in terms of modern western categories obscures the inhabitants' own perspective on social and ecological relations." Also important but often neglected is the political and social discourse embedded not only in the process of 'blending' the two forms of knowledge, but also in the democratization of knowledge generated through research to assist resource management.

One possibility that has the potential to pave the way for a sounder fellowship between the two forms of knowledge is a modification in the political relationships that govern interactions between First Nations, government and industry in land use and resource development. Currently there is much confusing rhetoric by most researchers and policy makers on the relevance of First Nations wisdom, which often amounts to mere academic and theoretical exercise. This will continue unless there is a conscious effort to reverse the over reliance on the politically and technically convenient method of 'ex situ' conservation, based exclusively on Western science, which fail to address the underlying asymmetries of power and control that cement in place the oppression of First Nations wisdom and ways of doing things (Agrawal 1995; Berkes 1982). Many researchers have alluded to this political imbalance as one of the major obstacles in the full recognition and acceptance of First Nations wisdom and approaches to resource management (Sharvit et al 1999; Barsh 1996; Stevenson 1999). In a recent article (Sharvit et al 1999), the authors lament the lack of clear governmental policy instruments and guidelines regarding First Nations participation in resource management and the blending of traditional knowledge and institutions with Western science. The reluctance of government and industry to formally recognize the utility of indigenous wisdom and the need for the active participation of local communities in resource management are additional obstacles to the potential realization of traditional wisdom and approaches. While, in theory, there is some acceptance of First Nations participation in resource management and the value of traditional knowledge, controversy remains in regard to the definition and understanding of terms such as co-management vs. cooperative management, as well as how the process of participation from First Nations can be accomplished.

## Land use and Occupancy Studies

Over the last eight years the Arctic Institute of North America at the University of Calgary, responding to community requests, has completed two major Traditional Land Use and Occupancy Studies (TLUOS)[1] in the province of Alberta: one at Fort McKay First Nation ("There Is Still Survival Out There" 1994) and the other with the Dene Tha'

[1]The term Traditional or Cultural Land Use and Occupancy Studies is used to describe how indigenous people use land and its resources. It is usually but not always a pictorial or graphic representation of traditional societies' interaction with their land and its resources. A TLUOS map will include area of various activities e.g. hunting, trapping, fishing, collecting and gathering, ritual and religious sites. It is a visual representation of traditional bush economy. Recently there has been a shift away from the term Traditional Land Use and Occupancy Studies, which could imply something static or purely historical, and towards the term Cultural Land Use and Occupancy Studies, which implies an evolving and living relationship with the land based on past and current practices.

First Nation ("Dene Tha' Traditional Land Use and Occupancy Study" 1997). The two projects were co-sponsored by various government agencies, corporate donors, the First Nations communities and the Arctic Institute. Both studies have been conducted with the conviction that the field of resource and conservation management is inherently infinite in scope and that for the purpose of knowledge generation, utilization, application, and democratization, the conventional approaches cannot provide all the answers to most of the critical questions on resource management problems. Consequently, the studies were conducted within the methodological framework of partnership and collaboration with the community, through participatory research paradigms. Through this methodological approach the researchers hoped to ensure commitment to the results of the research, and subsequently commitment to actions arising from the research. However, like many previous studies, in terms of application little has been done by policy makers and industry to incorporate into resource management policies the various relevant findings and recommendations arising out of the studies (Robinson and Ross 1997).

## Objectives

The main objective of this study was to investigate the usefulness, practicality and application of the two TLUOS studies, and how new insights gained from them have been used by the government of Alberta and industry, in resource management policy and practice. In broader terms, the study evaluates the impact of the two TLUOS, as well as subsequent peer reviews on the topic. The researchers' intent was to explore the actual and potential effects of the TLUOS to contribute, in practical terms, to the development of efficient institutions and policies towards improving sustainable resource management. Five major themes arise in delineating the research objectives:

a) the extent to which TLUOS data have been used by industry and government;
b) the extent to which these studies have contributed or can contribute to resource management regimes;
c) how the cooperative and collaborative efforts of First Nations, government and industry aimed at tackling the physical and social problems of resource use and management can be strengthened and sustained;
d) how the barriers that exist in the use of TLUOS data can be addressed; and
e) how resource co-management can be advanced in Alberta.

## Methodology

Judgmental, purposive, snowballing and opportunistic sampling techniques were used to select respondents for the interviews. Open-ended interviews/questionnaires were administered face to face with a cross-section of government and industry personnel. The open-ended questionnaire circumvents the usual constraints imposed by structured questions that require 'yes or no' answers, allowing the researchers to probe into interesting and relevant responses. The strategy also allows informants to talk about issues relevant to the study that were not envisaged at the time of preparing the questionnaires. The approach is appropriate in terms of the goal of the research, which is not to collate aggregative and quantitative data for statistical analysis, but rather to offer qualitative and exploratory insights into how TLUOS studies can been used by the various stakeholders to promote effective collaboration in resource management policies and practices.

## Results and Data Analysis

A total of thirty interviews were conducted (eight with Natural Resources Canada, two with the Department of Community Development**,** three with the Department of Aboriginal Affairs, six with academic researchers, five with the forest industry and six with the petroleum industry). Responses from the interviews are grouped into three main headings (and five subheadings) and presented in narrative form. The choice to present our results in a narrative style allows our informants to speak through the researchers, rather than the researchers speaking for the informants. This offers an opportunity for the audience to critically assess the informants' account and the researchers' interpretation of the information collected from the interviewees.

The responses from the interviews will be categorized into three main themes, with five sub themes. The first theme is methodology and technical issues. The second theme is sociopolitical issues, with the following subheadings: access to the data, larger political context, and need for government leadership. The third theme, issues regarding collaboration of the parties, is divided into two subheadings: differing expectations and agendas, and need for a coordinated system.

## Methodology and Technical Issues

**Observation:** There was a considerable concern about how the two TLUOS projects were conducted especially the methods used, accuracy of the data and other ethical problems. There is a need for government, industry and First Nations to have specific and accurate data with which to work in creating resource management plans. If traditional knowledge is to be combined with western scientific knowledge and management practices in a way that actually impacts on management practices, it needs to be in a format that is compatible with industry and government technology. Additionally, although government and industry were co-sponsors of the two projects they were never directly involved in the research. After the research and the final presentation of the documents, there was no follow up by the research team or the communities to discuss the research findings in detail and how to integrate them into government forestry policies. From government's point of view, follow up initiated by the First Nations communities is the first required step.

**Oil Sector:** *There is a frustration out there with level of accuracy of the data. The scale doesn't give enough information to do specific planning. The data would be useful to our work if it was more accessible and accurate. Fixed sites indicated have not always been able to be located. There needs to be more adequate training and standards so that GPS readings and meters are accurate.*

**Forestry Sector:** *We need current data. Historical hunting locations do not necessarily tell us where wildlife is today because as the forest changes, wildlife habitat changes. We have to be able to have compatible technology and pinpoint data to use it in our planning process...specific GIS locations within fifty feet...and it would be good to have the documents on CD ROM, so we can enter search terms for the specific information we need.*

**Oil Sector:** *The GPS system needs to be current and kept up to date. The problem is there is not a legacy of infrastructure...personnel and money to pay personnel. Bands need their own capacity to use the system.*

**Forestry Department:** *My thinking is that these studies, if I am not wrong, were to document First Nations knowledge on how they use their land for the purpose of preserving this knowledge for their children. It was also supposed to assist them to preserve sites that have historical and cultural relevance to their communities. The*

*studies were not directly meant for government to utilize in forestry policy as such. However, if government find some aspect of the data useful in particular situations they can use it, and this is what is happening now. Some of the data is being used in some ways. For instance, our community forestry projects borrow a lot of ideas from these land use studies. On the other hand, for government to fully accept the recommendations stated in these studies, the initiative must come from the First Nations who have all the information and access to the document. I don't know how many government officials have ever seen these studies apart from just a few of us.*

**Community Development:** *The studies are classical because they are a visual representation of the land and it uses by people who have lived with their land over thousands of years. It is a rich and pioneering piece of work which attests to the relevance of traditional people and their knowledge about the environment. I work on place names now and these studies have been very useful. However, it is sometimes quite a frustration because the absence of key indicators such latitudes, longitudes and reliable scales make it impossible to locate sites precisely and accurately.*

**Forestry Department:** *The level of accuracy of the data and location of sites makes it difficult to rely on these studies for forestry planning purpose. I think that the data would be more useful for us in terms of planning purposes if it was more accurate. People who have tried to use the maps tell me that fixed sites marked on the maps are in practice difficult, if not impossible, to locate. I think the data would have had no doubt a wider application in planning, especially in our department, if the location of the sites were supported with GPS measurements.*

**Forestry Department:** *The primary difficulty in applying the present existing land use studies in forestry management is the great spatial and temporal variability of environmental conditions. For the studies to be used effectively we need to understand not only the spatial and temporal variability in land use but also other kinds of information, including biophysical base line information such as soil and climate. This kind of information is not explicit in the land use studies. It will be useful if future land use studies could document First Nations wisdom on the biophysical variables. Secondly, the data lack some flesh in addressing questions such as why and how do First Nations use the land, and what institutions are put in place in these communities to ensure that desirable land use practices are followed. I suggest that future land use studies attempt to include First Nations traditional institutions that guide the appropriate use of land and its resources. This will be very helpful for us to follow their logic of land use.*

**Discussion:** One of the objectives of TLUOS is to facilitate resource management planning. On the part of First Nations this includes the move to a more cooperative form of resource management. While there has been some talk from government and industry about cooperative resource management, in practice their focus is on incorporating traditional knowledge as "add-on" information to their already existing systems. For example, a goal for industry and government in terms of resource management is incorporating important aboriginal sites into planning in an effective and efficient manner. Other goals for industry include the ability to assess the amount of mitigation that will be required before bidding on land leases, and the inclusion of First Nations concerns as part of the desire to be good corporate citizens.

Adequate funding is required for training and paying First Nations personnel, purchasing the necessary equipment, and ensuring ongoing maintenance and updating of the data. Because it cannot be assumed that all trained technicians will stay in the community, capacity-building needs to be widespread.

The forestry department finds that the TLUOS lack fundamental baseline and biophysical information on the environment as a whole, and poorly correspond with 'Western intellectual ideals of truth'. They also suggest that the type and kinds of information needed to implement or to apply most of the studies in forestry planning are incomplete or not accurate. This claim should not be confused with validity or reliability of the studies or traditional knowledge. The forestry department fully acknowledges the role of traditional knowledge. Nevertheless, planning officials at the forestry department indicate that the two TLUOS studies present planners with both solutions and dilemmas. The dilemma is more of an ideological problem than a technical one, deeply embedded in the notion of acceptable norms of Western intellectual development. This rigidly institutionalized Western intellectuality disregards most wisdom knowledge as anecdotal, non-quantitative and amethodical, and this attitude is strongly evident in some of the responses from the forestry department and research scientists.

One oil industry representative, expressing a view heard from several sources stated that in order for traditional knowledge to be used in resource management "there have to be scientific standards for gathering, identifying and recording information...it has to be accurate and reproducible". Yet an important issue with capturing traditional knowledge in these forms is the problem of reductionism and "de-contextualizing the data". Aboriginal people have a relationship with the land that is much more all-encompassing than fixed points on a map. Additionally, the knowledge is based in a

cultural context and an oral tradition which are not adapted to transference into GIS mapping systems (Natcher and Hickey, 1999; Stevenson, 1999). Although not a solution that addresses the complexity of the issue, it has been suggested that, in terms of technology, three-dimensional computer modelling systems may be more appropriate for collecting and recording traditional knowledge.

## Socio-political Issues

### Access to the Data

**Observation:** There is widespread dissatisfaction and frustration within government and industry regarding access to the studies. Their frustration and dissatisfaction suggest that ownership of, and access to, the results of the studies were not clarified at the beginning of the projects. Government and industry co-sponsored the project on the understanding that they would be part owners, or at least have free access to the data. As it turned out this was not the case, and the use of the studies have now become a confidentially and proprietary debate between the communities and government/industry.

**Oil Sector:** *There are confidentiality and proprietary issues. First Nations have information they want protected...sacred sites, medicine sites, salt licks... there is fear about what will happen to the information.*

**Forestry Sector:** *We have had discussions about acquiring detailed information. The First Nations are requiring fees..."If you pay us we'll give you the information"...They say "present us with your plans and if we can identify an issue we will bring it forward". Our company needs to be able to avoid problems ahead of time. The band wants us to respect the integrity of the data and the privacy...we don't need to know exactly what the site is...call it a Protective Notation or something similar...*

**Oil Sector:** *Where is the value of TLUOS? How can they be of benefit to all stakeholders? If the data sits in a vault somewhere, what's the point? Industry will not fund something when they have no idea if they will be able to use it, and when there is a lack of initiative to cooperate and provide reasonable access to the data.*

**Oil Sector:** *Maps could be used to avoid consulting with First Nations and just use the map. First Nations want to be told what the plans are and look themselves to see how they will be affected. Industry has confidential information on their maps too...need some way to consult with them in a way that respects the confidentiality of both parties.*

**Forestry Department:** *The real aim of the two studies were not clearly presented to government. The thinking of government at the time was that the research was going to provide data that government could have free access to, but it turned out that the document is now not a public document. Logically, this makes it difficult if not impossible to plan with a document which cannot be easily made available to planners, even if they are willing to consider some parts of it. This is a critical question for people to consider when talking about how the studies have be used by government.*

**Aboriginal Affairs:** *First Nations communities view is that when the data is made public and everyone can have access, some sectors such as industry would avoid consultation and just rely on the map. First Nations want to keep the information to allow them to have better consultations with government and industry. I think that despite the claim of inaccessibility of data, these studies are historical because they empower First Nations to argue on many issues ranging from land claims to resource development on their lands. I think government is dragging their feet in the recognition of the studies for political reasons rather than merely just lack of accessibility to the data or accuracy. I think government needs to develop more collaboration with First Nations on how best the data from the studies can be used, and I think this important step to make the data useful is lacking.*

**Forestry Department:** *Government, and I think industry, supported the project because they thought it was a good and novel project, and that they would have access to the data. As it turns out both government and industry have no free access to the data. I understand, and it is true, that First Nations would have some information they would not want to share with the public, for example sacred sites, medicine sites etc. for fear the information will be misused. This is quite understandable but it is also a contradiction especially if we are asked how we have incorporated the studies into our policies. Certainly, we have learned a lot about First Nations and the use of their land, and most officials from this department are becoming more sensitive to native views about their land. On the other hand, it is quite difficult to incorporate the studies fully into planning policy because there are a lot of gaps including accessibility and accuracy.*

**Discussion:** According to one interviewee, confidentiality of data is an issue for all parties: "First Nations, government and industry all have confidential information in GPS form." Industry representatives had ideas and suggestions about how to overcome the issue of maintaining confidentiality. One idea mentioned by both the forest and oil sector was creating symbols or notations for maps that indicate a generic fixed site in need of

protection. Another suggestion was that industry and First Nations could engage in meetings where each brought their own maps, overlaid them on a base map, identified areas of concern and how to mitigate these, and, at the close of the meeting, each would retain their maps with their confidential data. Finally, it was suggested that a neutral third party could store and coordinate the data.

Industry expressed frustration that data was being withheld by First Nations for political purposes or monetary gain. Conditions have been placed on access to the data such as negotiating access to the land, or payment of fees for First Nations data and consultation. In the eyes of industry who have participated in the TLUOS, these are unexpected and unfair barriers. Factors that contribute to this situation are the lack of clear agreements and understanding at the onset of the projects, historical exploitation of First Nations and consequent lack of trust, and unequal access to power and resources that may result in First Nations using the ownership of TLUOS data to gain more equality in power.

Issues regarding access to the data are intricately entwined with the issues of de-contextualizing the data, and community control of traditional knowledge. Traditional knowledge is embedded in a social and cultural framework. Part of this framework is a multifaceted relationship with the land that includes spiritual, temporal and spatial aspects. Fixed site points on maps separate traditional knowledge from the culture and the individuals who own it (Stevenson 1999; Natcher and Hickey 1999). Additionally, this separation creates the possibility of consulting the maps as the authoritative and only source needed. This possibility is an advantage for industry and government because it is efficient and easily adapted into their systems. For First Nations, however, this possibility is a disadvantage because it excludes any actual participation of the community in the resource management planning process.

**Larger Political Context**

**Observation:** Difficulties in the application of TLUOS data to resource management are effected by external factors. The most influential external factor, by far, is the outstanding unresolved issues between First Nations and the provincial and federal government including: recognition of traditional lands, issues of jurisdiction and co-management, and outstanding land claims. Another external factor is a lack of consistent commitment to TLUOS within First Nations communities.

**Forestry Department:** *I think the studies have a great use to our department. We are indirectly using some of the lessons from these studies in some of forestry policy (community forestry) and we are more aware of native sensitivities to land use issues. All that needs to be done is more collaboration between government, First Nations communities and other resource users or developers. I know there are political obstacles to this collaboration and the present problem of land claims is making government a bit uncomfortable with terms such as co-management. Although we here use the term, the meaning or definition of the term is still quite unclear because of its political connotation. Most colleagues will view co-management or cooperative management as a way of stripping government of its power especially in forestry policy and management. So I think the question of adopting the recommendations has more to do with maintaining the status quo.*

**Aboriginal Affairs:** *I think this is fairly a good piece of work which has been soiled by politics. The First Nations who sponsored the project wanted to document their land uses for future generation and for better management of their resources. If the document has turned out to be an empowering tool for land claims, I see nothing wrong with the use of the studies in that direction. Again, if First nations decide to keep some of the information secret they have their reasons and fears for that decision. If government want really to use the data they have the chance to go into negotiation with these communities. Government reluctance to implement some of the recommendations in my view is just pure politics of trying to dodge it's responsibilities.*

**Researcher:** *Although the TLUOS is novel piece of work and surely has a lot to contribute to our understanding of the ecosystem from the perspective of local inhabitants, it has been hijacked with politics and thus misused in some cases. In some First nations communities the studies have caused quite a number of problems. For instance First nations communities are using the studies for self-serving interests and even to stop developments which may be in the interest of the group.*

**Researcher:** *I think government attitude to these studies has more to do with maintaining the status quo ownership of land and resources. Government is skeptical - they think that bowing down to these recommendations means losing control of power over land issues. Theoretically, government sees consultation and collaboration with First Nation through political bureaucratic channels/political representative (department of Indian Affairs). I think the First Nations have to use the political channels to push government to formally recognize their participation and wisdom in land use issues.*

**Discussion:** During the past decade awareness and support for the recognition of Aboriginal traditional lands and traditional knowledge has been accelerating. As noted earlier, international support is indicated by the emphasis on these issues and their relationship to sustainability by the Bruntland Report, Agenda 21, the Convention on Biodiversity and the Forest Stewardship Council. Nationally, the Royal Commission on Aboriginal Peoples, the Canadian Environmental Assessment Act, the Canadian Council of Forest Ministers, and Canada's National Forest Strategy all point to the need to incorporate First Nations rights and traditional knowledge and land use, into resource management. Finally, recent court decisions in Canada, such as *R. v. Sparrow*[2] and *Delgamuukw v. British Columbia*,[3] uphold the duty to consult with Aboriginal peoples regarding use of their traditional lands and recognition of traditional knowledge (Sharvitt et al 1999; Institute on Governance 1998).

The government of Alberta continues to refuse to give formal recognition of traditional lands. This has more to do with the political implications of that recognition than with accepting the findings of the TLUOS. If traditional lands were recognized, the Alberta government would be required to re-examine issues such as jurisdiction and sharing of royalties. Another major political obstacle is the use of terms such as co-management which, from the perspective of most Alberta Forest officials, is tantamount to giving up government control over land use issues. Yet the need and pressure to include First Nations perspectives and participation in resource management operations and policies is clearly an issue that is not going to disappear. As one oil sector representative stated: "For co-management to work, there has to be buy-in of all parties, including government and industry...currently there is resistance to making changes in power-sharing and resource sharing...however changes have to occur - the choice is one of being part of the solution or part of the problem."

There is also an issue regarding lack of consistent commitment to the TLUOS within First Nations communities. There are many factors which may contribute to lack of consistent commitment and follow-up including: pressing social and economic problems within communities; internal politics and change of leadership; lack of initial emphasis on gaining wide-spread support within the communities for the studies; lack of resources to maintain and update information; and inequality of power in terms of influencing the resource management process.

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[2][1990] 1 S.C.R. 1075 at 1107
[3][1997] 3 S.C.R. 1010

As one industry representative stated, there is a need to "give recognition to federal court decisions like Delgamuukw and recognize traditional rights and aboriginal rights under the law of the country... the Alberta government has to recognize these rights." If the government is to provide the kind of leadership required in the creating, coordination and use of traditional land use studies, this recognition is an absolute prerequisite. In addition, this must happen in order to settle larger questions of jurisdiction and who has the authority to approve land use. According to one forestry interviewee, "The issue of jurisdiction has to be resolved. Industry has to assume the agreements with the province are valid. A clear set of rules can only help - you need certainty for business to survive and prosper."

Two of the conditions that often precipitate an attempt to engage in collaborative problem-solving are: 1) increase of uncertainty within the problem domain; 2) the timely introduction of an innovative idea to the problem domain (Kofinas and Griggs 1996). Recent court decisions in Canada, combined with Aboriginal activism on land issues, the pursuit of First Nations land claims, and international calls for sustainable land use and recognition of Aboriginal rights, are a series of events that increase uncertainty in the realm of resource management in Alberta. The second condition, the timely introduction of an innovative idea to the problem domain, applies directly to traditional land use studies and their potential contribution to addressing Aboriginal involvement in resource management.

**Need for Government Leadership**

**Observation:** There is a strong feeling among the members of industry interviewed that government is avoiding it's responsibilities and eschewing leadership with regard to land allocation and with regard to traditional land use studies. Government employees also point out the need for appropriate policy initiatives to be implemented by elected representatives, as some of the recommendations of the TLUOS are beyond the jurisdiction of civil servants. Additionally, in the view of some industry representatives, government is not exercising leadership or responsibility in the larger issue of the duty to consult aboriginal peoples, and the necessity to establish the nature of First Nation's rights within their traditional lands.

**Forestry Sector:** *Government has left things in the hands of industry that they do not have authority over. There is a duty to consult when the land is allocated; our company has no jurisdiction to do so...the duty to consult should be borne by the Crown. We're in*

*the industry to make pulp and lumber... now we're making policy for the government. We're not in the business to do that, and we can't do that.*

**Oil Sector:** *No one has taken any leadership. First Nations are making requests (for funds) of industry - we don't know how to deal with it. We want to respect First Nations, and the problem is bigger than one company. Government has been noticeably absent from the table...you have to hog-tie them to get them there. Government has to be a partner...they are the ones who need to define what the conditions are for access to the land.*

**Forestry Sector:** *Government leadership must be strong and consistent. We're not saying "It's not my job" but this needs to be led by the steward of the land. One industry or one proponent cannot lead the process. It can't be "we'll bring in a government facilitator, and you guys work it out" or "incorporate their concerns into your plans."*

**Oil Sector:** *There is a desperate need for the Alberta government to show up in traditional land use...they are not at the table. The government sees the situation between oil companies and First Nations and runs for the hills. They say "you sort it out", but legally government has all the rights to traditional lands and morally First Nations have rights to traditional lands. What does industry do?*

**Forestry Department:** *Our department is doing its best with regards to the incorporation of these studies into forestry policy. But it is a gradual process, we have to be very careful that in trying to do this we do not cause more problems. As for the recommendations in their entirety, there are problems. Some of the recommendations are beyond the jurisdiction of this office and are purely political...we are civil servants. A way out will be for the government representatives to table some of these ideas through the appropriate government channels for consideration.*

**Aboriginal Affairs:** *The studies have provided unique information and I think government needs to stimulate discussions on the topic through further consultation and workshops on such studies involving First Nations, Forestry Department and other resource developers such as the oil and gas industry. Government now needs to recognize that issuing licenses to industry to drill or harvest forest products is not enough. It is becoming increasing clear that industry and government need to obtain a social license to operate in First Nations communities. This social license is essentially respect, collaboration and understanding of First Nations' use of their land. And this is*

*the whole crux of these land use studies. It is a process where government has to further develop better working relations with First Nations communities, and to put politics aside. The failure of government to play this leading role is costing industry a lot.*

**Discussion:** There is a high level of frustration within industry over the lack of government ownership and action in the area of TLUOS. The refusal of the Alberta government to recognize traditional lands leaves industry, First Nations, and civil servants without support or direction. Industry recognizes the need to address the issue of traditional lands and protection of sites that are important to First Nations. There is an expressed desire to include these factors in their management operations and strategies. Because of this recognized need and because of government absenting itself, industry is making an attempt to consult with First Nations. However, these actions are beyond their mandate and authority, and perhaps beyond their ability. As the legal steward of the land, it is the responsibility of the Alberta government to provide leadership and direction in both the larger issues of traditional lands and jurisdiction, and in the specific case of TLUOS.

## Issues Regarding Collaboration of the Parties

### Differing Expectations and Agendas

**Observation:** The process of conducting TLUOS is an evolutionary process that is emerging and in transition. As pioneering and exploratory efforts, these studies were not critical of the final product. From a methodological point of view there was a lack of clarification regarding the aims, expectations and agendas of the studies among the three parties. This has caused frustration and suspicion on the part of industry and government with the unexpected outcomes and barriers that have arisen.

**Researcher:** *One of the major constraints to the use of the TLUOS data is the conflicting views and interest of the various stakeholders who sponsored the studies. These conflicting interests have to some extent soiled the credibility of the studies. The First Nations interest was more to document their land uses for the purpose of land claims rather than purely for land use or forest policy issues. On the other hand, government and industry bought into the project with the thought that they would get access to information that would assist them to deal with land use and resource development on First Nations lands. Because of these conflicting interests some people are suspicious that the research itself was contaminated. In the future, funding for such*

*projects should be in a central fund to be administered by a neutral body with no vested interest in the land.*

**Oil Sector:** *The TLUOS have caused more problems...some bands are using them to get money, hold up developments, or for self-serving interests. TLUOS are not serving the purpose intended - that purpose has not been defined...what are the purposes?*

**Forestry Sector:** *First Nations are going to use TLUOS to assert jurisdiction...they have lost the focus on protecting these sites and now it is proof that they own the land base. What's really happening is that everyone has a map on the wall and a felt pen, and they're saying this is my land and pay me money...we're paying double royalties.*

**Oil Sector:** *There are differing agendas and understandings about management by the various parties - the Alberta government doesn't recognize traditional lands, there are overlapping territories between First Nations, within industry there are differing attitudes among the different companies and among different industries. For resource management companies the key is access to land, for First Nations the key is survival of their communities, cultural and economic...government needs to work with these two parties.*

**Oil Sector:** *First Nations and industry don't understand each other. Industry looks at days, First Nations look at months (with decisions by consensus). Industry doesn't necessarily understand the value of traditional lands, trapping...we're working with different time frames - our industry looks year to year, First Nations look 50 to 100 years.*

**Discussion:** It is clear from the responses of the interviewees that mutual goals, expectations, understandings and agendas were not established prior to undertaking the TLUOS. Additionally, the historic lack of clear agreement and understanding amongst participating parties regarding the objectives of TLUOS has been documented by Robinson and Ross (1997).

A draft document from the Canadian Association of Petroleum Producers (CAPP) outlines the benefits of TLUOS to First Nations and to industry, as seen from the CAPP perspective (CAPP 1998). The following benefits to aboriginal communities are cited:

- documentation of traditional knowledge to create a permanent record
- data base for teaching cultural information to future generations

- quick reference to determine "pinch points" on proposed development
- capacity development process within the community, and
- tool for assisting the economic sustainability of the community.

The following benefits for industry are cited:

- industry awareness of areas of significance to aboriginal communities
- provides early warning of potential concerns and provides opportunities or options to address mitigation issues early
- more timely approvals/access
- improved relationships/reduced risk of work stoppage
- provides the foundation for a pre-tenure process, and
- process develops human resource and business capacity within aboriginal communities which can potentially be accessed by industry.

Robinson and Ross (1997) outline three goals of TLUOS including: 1) collection and preservation of traditional knowledge; 2) integration of this knowledge into resource management; and 3) for the Aboriginal communities, active participation in resource management decision-making processes. While CAPP recognizes the first goal of preservation of traditional knowledge, their assessment of the second goal seems to be limited to the avoidance of fixed sites or "pinch points", and the third goal of active partnership in resource management is not mentioned at all. Robinson and Ross (1997) indicate that there has been recognition to some extent by one forestry company, Alberta-Pacific, of all three goals.

With regard to government recognition of the three goals, Robinson and Ross (1997) indicate that there has been some indication of support for the first two goals by the provincial government, although there are no legal requirements in Alberta for the collection, recording, or integration of TLUOS data in resource management. In terms of the third goal of Aboriginal involvement in forest planning, the Alberta government favours the more nebulous concept of cooperative management, involving consultation and cooperation, versus the concept of co-management which is viewed to entail joint authority over resource management (Robinson and Ross 1997).

It is clear that each party has their own set of interests in the carrying out of traditional land use studies. There is a need for the parties to sit down together and clarify which are shared interests, differing interests and opposing interests. Because there seems to be a possibility of benefit for all parties in mutual action, negotiations on collective and

reconcilable interests would provide a starting point for making clear agreements and setting the stage for the joint creation of a coordinated system for TLUOS (Wood and Gray 1991; Fisher and Ury 1991). Again, the participation and leadership of government, as the legal steward of the land, is essential to such a process.

**Need for a Coordinated System**

**Observation:** Currently the approach to TLUOS and consultation in the province of Alberta is fragmented and uncoordinated, with some companies and industries taking a leading role in the process and others ignoring the issue. Government is conspicuously absent from the process. The many difficulties that arise from such an ad hoc approach have prompted some industry players, researchers and government employees to call for a coordinated system.

**Forestry Sector:** *There needs to be government involvement, community involvement, and industry involvement. A collaborative approach and process could provide the mechanism for cooperative management...a premeditated approach discussed and agreed on by everyone.*

**Oil Sector:** *CAPP is currently looking at funding and standards and criteria for TLUOS that meet all stakeholder requirements - government, industry and First Nations. There needs to be a pool of money that could come from forestry, oil and gas, mining, provincial and federal governments. There needs to be a neutral body with no vested interest in the land to administer a master system, that has a trust relationship of all three parties - or a willingness to share information and do site visits to confirm fixed sites.*

**Forestry Sector:** *We need a framework for cooperative management, a set of rules to identify everybody's responsibilities and obligations and penalties for not complying...a tripartite agreement with clear understanding by government, industry and First Nations of responsibilities...*

**Oil Sector:** *A more disciplined and sustainable approach to TLUOS is crucial, both in raising funds and managing the process. Assuming that most First Nations will at some point want a TLUOS, government has to get clear with First Nations...There needs to be a mechanism that involves broad financial contribution, scientific standards, accountability, data repository or library...*

**Aboriginal Affairs:** *For the implementation of the data there is a need for coordination and collaboration between first Nations, government and industry. Presently there is no coordination and collaboration, especially in this province, in the use of TLUOS data. Government is somewhat suspicious about TLUOS data and it's political implications. TLUOS data have been used in some cases to support land claims and government is being skeptical about accepting these studies wholly because of the potential political implication. The government rhetoric about integrated land use management is only achievable if more discussions are opened on these land use studies. Since the publication of these studies there has not been any serious discussions on the data and this is a frustration and a major obstacle to their use and the implementation of some of the recommendations. The peer reviews alone are not enough to resolve the tussle over how the studies should be used effectively.*

**Aboriginal Affairs:** *I think the TLUOS studies could be made more relevant if there was a follow up in the form of consultation and negotiation on how the studies should be used, and what aspects of the recommendations emerging from the studies need to be implemented and how... for rules to identify each sectors' (government, industry and First Nations) responsibilities and obligations in the use of the studies.*

**Discussion:** Most industry respondents mentioned a need for a more systemic and coordinated approach to TLUOS. Creating a pool of money to fund TLUOS that requires contribution from all sectors and companies was an important theme. A coordinated system would also address the issue of "double-dipping" or "double stumpage", with some First Nations demanding fees for access to data or traditional lands, after a company has already contributed to the TLUOS. Industry sees the creation of a system also addressing other issues such as standards and criteria, accountability, accurate data, clearer understanding of each party's expectations, confidentiality, early access to information in the bidding and planning process, and improved communication and coordination between industry, First Nations, and government.

For First Nations, there are several advantages of a coordinated system. In negotiating a consistent approach to TLUOS, mechanisms could be put in place to address proprietary and confidentiality issues, issues around de-contextualizing the data, the blending of traditional knowledge and scientific knowledge, and assurance that the research process will be carried out in a way that empowers, and increases capacity within, the community. Additionally, a coordinated system could ensure adequate funding and

support for the initial TLUOS, the maintenance and updating of the data, and the establishment of TLUOS offices within the communities.

Gray (1985) has identified a series of conditions that facilitate collaboration, some of which follow. All relevant stakeholders must be identified, in order to: 1) gather the necessary information and expertise, 2) include those effected in designing the solution, and 3) facilitate implementation. Stakeholders must believe the benefits of collaborative problem-solving will outweigh the costs, and are preferable to other options. There must be recognition by stakeholders of at least partial interdependence of their organizations. This includes a minimum consensus on an overarching goal and the recognition that mutual dependence effects some equality in power relations. The legitimacy of all the stakeholders must be accepted. The convener must be seen as having the authority to organize the collaboration, and "in systems for which a natural authority exits...it may simply need to be pressed into service by appeal from one or more of the stakeholders" (Gray, 1985:923). Agreement on the problem, and a similar set of values to lead to a solution, facilitates collaboration. "When stakeholders hold conflicting values and widely differing perspectives on the problem, initial interactions must be designed to promote valid exchange of information and to search for common ways of framing the problem" (Gray, 1985:925). There must be sufficient distribution of power to enable key stakeholders to possess roughly equal capability to influence the process.

Considering the current disparity in agendas and power, and the historical and political context of First Nations/government/industry relations, this is a tall order for the three stakeholders. Just one example, regarding the necessity for stakeholders to believe the benefits of collaboration outweigh the costs, and are preferable to other options, indicates the magnitude of the challenge. The government of Alberta seems to gain most benefit from the option of avoidance. Industry, while not united and having some reservations about the costs of the process, seems to favor collaboration as the preferred option. In the past, certain First Nations have viewed collaboration as having some benefit. As a few survey respondents remarked, this situation may be changing due to several recent court decisions favoring Aboriginal claims. The perceived benefit of collaboration for First Nations may be shifting with the potential increase in benefits of settling issues through legal avenues.

The provincial government is the appropriate convener of such a process, having the legal jurisdiction and authority over land use and resource management. The question of whether the challenges of creating a collaborative system for TLUOS can be met is a

moot one, until the Alberta government takes the initiative of bringing all three parties to the table. Government needs to take the lead to make consultations with First Nations and to provide the kind of leadership that is required to create a tripartite committee between industry, First Nations and government to deal with traditional land use studies. In order to do so, the Alberta government must recognize the existence and legitimacy of traditional lands, as the government of British Columbia has done. Additionally, the questions of who has jurisdiction and who has the authority to approve land use policy must be clearly outlined. The question of social license to harvest forests or use resources in First Nations communities can only be tackled effectively when First Nations' perspectives on their land and its uses are adequately understood. The TLUOS data, though having some technical and methodological problems, is a step toward creating awareness and understanding of First Nations perspectives on their land and its resources.

## Conclusions and Recommendations

The foregoing results and discussion demonstrate in a broad context the complex and dynamic nature of the challenges in applying the data gathered in TLUOS. The application of the TLUOS data to resource management in Alberta is constrained by a number of interactive factors both internal and external to the studies. In order for TLUOS to be effective in documenting traditional knowledge and influencing resource management policies and practices, the authors make the following three recommendations.

**Recommendation one:** The Alberta government should address the larger, unresolved issues between First Nations and the province.

One major factor that contributes to a less than congenial environment for the conduct of TLUOS is the greater political context of unresolved issues between First Nations and the provincial government. The international and national support for the recognition of indigenous knowledge, rights, and traditional lands is wholly evident. As one of the industry respondents stated, "the writing is on the wall". The Alberta government only further exacerbates a complex and difficult situation by choosing to avoid the issues. Certainly, the documentation and application of traditional land use practices would be facilitated by clearer policy and direction on these larger issues.

**Recommendation two:** Appropriate mechanisms to blend traditional knowledge and scientific knowledge in resource management should be developed.

Another external factor that influences the application of TLUOS data is the chasm between the cultures and worldviews of traditional ecological knowledge and scientific knowledge. Gunn et al (1988) state that the organizational frameworks of indigenous knowledge systems and scientific knowledge systems are different enough that they defy integration. Natcher and Hickey (1999:180) emphasize the establishment of a process that conveys relationship:

> It must be recognized that the knowledge presented in land use research is not mutually exclusive from the people who actually apply that knowledge system...Because there is a growing reliance on land use research in the planning and assessment process, direct community involvement is required more than ever...if the cultural landscape of Aboriginal peoples is to be recognized in land use research, a process must be established that recognizes that the textualized landscape comes with people and a culture attached.

The objective is not to reconcile the two world views, as this is not possible. The unanswered question remains: Can a framework be created that allows for agreement on certain issues without creating unreasonable de-contextualization or compromise?

**Recommendation three:** A collaborative problem-solving process between First Nations, government and industry should be initiated by the Alberta government to address issues and create a coordinated system for the organization and implementation of TLUOS and their application to resource management policy and practice.

This raises the final issue regarding the need for collaborative problem-solving by the three parties in order to create a workable coordinated system for the organization and implementation of TLUOS. The government of Alberta needs to demonstrate leadership by convening the three parties to engage in discussion of TLUOS. In order to overcome current problems with TLUOS, agreement needs to be reached on the aims and objectives of TLUOS, as well as procedures for follow up and application of the data to resource management plans. Within a collaborative problem-solving framework, other constraints to TLUOS, such as confidentiality of data, funding, and methodological and technical problems, could be addressed. In order to create such collaborative framework, all parties must acknowledge mutual interdependence and see mutual benefit, there must be an openness to change and more equitable distribution of decision-making, power and resources, and there must be a willingness by all parties to overcome historical barriers to cooperation.

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