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A Criteria and Indicators Approach to Community Development

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A Criteria and Indicators Approach to Community Development

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Abstract

Used in the discourse of sustainability, advocates of community-based resource management often depict indigenous communities as homogeneous sites of social consensus. While proving successful at advancing local involvement in the management and decision-making process these idealized images fail to represent the plurality of values and personal interests nested within indigenous communities. Thus by failing to account for internal diversity, indigenous communities who are now regaining management responsibility for their traditional homelands risk furthering the traditional 'top-downism' long inherent in institutionalized resource management. However, in regaining these responsibilities, indigenous communities have an opportunity to implement new and locally-defined approaches to management. This paper describes one such community-based process, and builds upon the experiences of the Little Red River Cree Nation of Alberta, Canada, to illustrate the challenges and opportunities involved. Specifically, through the use of criteria and performance indicators, derived from multiple community perspectives, the Little Red River Cree Nation has developed a self-improving forest management system that is proving responsive to the values, expectations and changing needs of community members.

Keywords: Community, Pluralism, Co-Management, Indigenous, Sustainability.

Introduction

Throughout the world indigenous peoples are regaining degrees of management responsibility for their traditionally used lands and resources. Whether accomplished through the settlement of comprehensive land claims or gained through the negotiation of co-operative or joint-management agreements, the involvement of indigenous peoples in the management process is being recognized as both an unrelinquished right (e.g., Report of the Royal Commission of Aboriginal Peoples in Canada 1997), as well as a necessary factor in achieving the sustainable environments on which we all depend (e.g., Brundtland 1987). By asserting rights of use and authority over traditional lands, indigenous peoples are now beginning to reposition themselves within the institutions most responsible for the management of their homelands. This institutional realignment is not only providing a more equitable role for indigenous communities in the decision and policy-making process, but is also demonstrating a clear shift in contemporary resource management as decision-making authority moves from the macro to the local levels of responsibility.

Contributing to this reorientation has been the strategic use of the concept 'community'. Used in the discourse of sustainability, advocates of community-based resource management often depict indigenous communities as sites of social homogeneity, harmony and consensus. Applied in political and discursive contexts these idealized images have been used strategically to counter prevailing management orthodoxies by stressing equality, the value and wisdom of local environmental knowledge, and time-tested traditions of communal stewardship. Such representations have proven successful at advancing local efforts to legitimize alternative and community-based approaches to resource management and have thus provided indigenous peoples with additional support to promote local involvement in the management process.

In defining what characteristics contribute to community homogeneity some scholars (e.g., Berkes 1989; Pinkerton 1989; McCay and Jentoft 1996) emphasize group cohesion and collective values in terms of kinship, ethnicity, religion and even fishing gear type. Owing to shared communal traits it is argued that community-based management can respond more effectively to environmental change, can help ensure compliance among resource users to agreed upon rules and regulations, can promote local systems of household food security, and will prove generally more responsive to the evolving needs and interests of resource users. Such local or decentralized systems of management are therefore seen as being more congenial to communicative rationality and thus representative of community norms and values (McCay and Jentoft 1996: 247).

Chambers (1983) and Li (1996), however, are among anthropologists who have shown that indigenous communities are not homogenous entities but rather sites of pluralism with a range of ideological positions. This view is supported by Tiani (2001: 72), who notes that within any one community there generally exist several subgroups with different and often contradictory interests. Rather than existing within a socio-political or economic vacuum, indigenous communities have in operation a number of autonomous and independent groups with fundamentally different, but equally valid, objectives and interests on issues ranging from politics to environmental management (Anderson et al. 1997). These differences, and the conflicts that often arise from them, can be attributed to a range of variables including age,

gender, religion, kinship, worldview, education and economic differentiation. Thus in the context of resource management pluralism refers to a delineated social setting where a number of individual and/or communal factions with different values, perceptions and objectives seek influence in the management and decision-making process.

Notwithstanding the validity of multiple perspectives, resource management remains a social process in which cultural, economic and political variables inevitably come into play. Therefore, even within a community-based context the inclusion of some interests has generally meant the exclusion of others. For instance, in reference to gender and generational inequalities Nuttall (1998: 24) has noted that differences among community members are often overlooked in the management process even though they may be members of the same family or household. Similarly, McDougall (2001: 50) has argued that despite assertions that community diversity can be taken into account more readily by local management, elements of diversity often go unnoticed and even avoided as their inclusion may prove too challenging to local management efforts. Thus despite enhanced local involvement in the resource management process, final decisions often remain reflective of only the dominant modes of power prevailing in the community at the time, thereby muting alternative perspectives, insights, and systems of knowing. Consequently, by failing to account for community pluralism, local management efforts all too often only soften the traditional top-down relationship long inherent in resource management, resulting in the continued subjugation of values and concerns of some community members.

Despite these participatory limitations, advocates of community-based management continue to deploy idealized images of community as a means to defend 'community' interests and to gain a degree of management responsibility. However, because both the operational and the theoretical question challenging community-based management lies in the problem of representation, as representation is the main source of legitimacy, the success of community-based management will in the end depend largely on the efficacy of community participation (Hernes and Sanderson 1998). Therefore, as indigenous communities achieve a greater role in the management of natural resources, local managers will require a means by which community pluralism can be effectively monitored and evaluated if they are to avoid "local top-downism" and implement an effective and inclusive approach to community-based resource management.

This paper outlines one such process and uses a case study of the Little Red River Cree Nation (LRRCN) of Alberta, Canada, to illustrate the challenges and opportunities involved. Specifically, this paper demonstrates how a community-based management program can be developed to: 1) facilitate an assessment of existing and future resource management practices based upon prevailing cultural, social, ecological and economic criteria; 2) implement a monitoring and evaluation framework that provides a basis for continuous improvement of management objectives; and 3) serve as a means of managing conflict by articulating the diversity of values nested within indigenous communities. At the most basic level of analysis this paper demonstrates the necessity of pluralistic representation as we explore alternative and more sustainable approaches to environmental management.

Background

The Little Red River Cree Nation (LRRCN) is located south of the Caribou Mountains in the Lower-Peace River region of north-central Alberta, Canada (see Figure 1). The local environment is classified as both boreal mixed-wood and boreal subarctic eco-regions.

Residing on three separate reserves, the collective population of the LRRCN is approximately 2,500 members. Fox Lake, the largest of the three communities, has an on-reserve population of approximately 1,280 residents. Fox Lake is accessible in summer by way of a single vehicle barge that portages the Peace River. In winter, three ice roads that cross the Peace, Wabaska, and Little Red Rivers provide access and are open generally from freeze-up in November until break-up sometime in March. The smallest of the three Little Red River communities is Garden River. Located approximately 11 kilometers inside the boundary of Wood Buffalo National Park (WBNP--Figure 1), Garden River has a population of 375 residents. Accessed by an 80 kilometer gravel road and a 40 kilometer 'bush' road, travel to Garden River can be challenging as road closures can occur quite regularly following even the most modest amounts of precipitation. John d'or Prairie is the most accessible of the three communities and has a population of 715 residents. John d'or Prairie is linked to the regional center of High Level by way of Highway 58, an all-weather gravel road that is maintained for year round travel. Each of the three Little Red River communities is accessible by Little Red River Air, a service owned and operated by the LRRCN.

Of the approximately 2,500 community members, 75 percent of the population is under the age of 30 (Indian and Northern Affairs Canada 2001). While almost three times the Canadian average, this ratio is expected to increase dramatically as the LRRCN population is projected to double over the next 25 years (Woodrow and Campa 2001). This demographic trend is of major concern to the LRRCN leadership in that 85 percent of eligible community workers are unemployed (ages 15-65) and 70 percent of all community members receive some sort of social assistance (Webb 2001: 18). Similar to other northern aboriginal communities, the few wage-earning opportunities that do exist are within government services, First Nation administration, capital works and occasional seasonal opportunities such as firefighting and tree planting. With few local wage-earning opportunities, coupled with the high cost of commercial foods, community members continue to rely on the procurement of natural resources to provide for much of their sustenance needs.[1] The continued reliance on traditionally used lands and resources therefore remains critical to the economic, social, and cultural sustainability of the LRRCN.

The LRRCN is a signatory of Treaty Eight (1899). First Nation members of the Little Red River communities are therefore constitutionally assured of their continued rights to hunt, trap and fish in all seasons of the year on all unoccupied crown lands. This constitutional protection has in effect imposed a fiduciary obligation upon the Canadian government to maintain an environment conducive to the exercise of those rights. Since the 1950s, however, the expansion of agriculture into the lower Peace River region has resulted in the clearing of approximately 4 million hectares of once forested lands. Over this same time period, rights to much of the remaining land have been awarded to non-aboriginally owned petroleum and forestry companies, the latter in the form of Forest Management Agreements (FMA).[2] The annual allowable cut for this region is currently 1,000 hectares per year. This volume, however,

does not include the extensive network of seismic lines, industrial access roads, and pipelines needed to support these extractive industries. In terms of linear disturbance, Stelfox and Boutin (Pers. Comm. 2002) estimate that throughout north-east Alberta there exists a network of over 36,000 km. of primary and secondary access roads associated directly with resource extraction activities. This figure, together with a mean density of oil and natural gas sites of 25.0 per 100 sq. km, has resulted cumulatively in a significant industrial footprint in northeastern Alberta and by extension in the north Peace River region, as well (Stelfox and Boutin, Pers. Comm. 2002).

While resource development has been promoted by government on the merits of regional economic growth, the purported benefits associated with the regional development, as noted above, have yet to reach the LRRCN. Further, because of the rate of industrial expansion, together with the demographic trends of the LRRCN, community members and band leaders have become increasingly concerned that the remaining forested lands may soon become incapable of providing for the subsistence needs of community members.

In response to these concerns, and what the LRRCN saw as a direct infringement of Aboriginal and treaty rights, the LRRCN leadership in 1991 entered into a dialogue with the federal and provincial governments in an effort to ensure that their constitutional rights to lands and resources were both recognized and protected. As part of a more encompassing process of policy dialogue between the LRRCN and government, the LRRCN and neighboring Tall Cree First Nation have entered into a cooperative resource management agreement with the provincial Government of Alberta (specifically the Departments of Environmental Protection and Aboriginal Affairs). In the form of a Memorandum of Understanding, this agreement has established an institutional framework for cooperation designed to manage a 30,000 km² Special Management Area (SMA). Representing a significant portion of the LRRCN's and Tall Cree First Nation's traditionally used and occupied territory, the SMA extends throughout the Lower-Peace River Valley (see Fig. 1).

To administer the terms of the Agreement a Cooperative Management Planning Board for the SMA has been created. The Planning Board is comprised of 14 voting representatives. The Little Red River and Tall Cree First Nations are represented by 5 community members along with 2 representatives from their economic development corporations. The remaining Board members represent: the Alberta Government (3); the Municipal District of Mackenzie (1); forest industry representatives holding tenure permits within the SMA (2); and the Canadian Association of Petroleum Producers (1). Remaining inclusive of other interests, the Board has the authority to involve other regional stakeholders as well as to undertake public consultations to fulfill management objectives. Operating on a consensus-based approach to decision-making, any matter decided upon by the Board requires support by a majority of the First Nation representatives to pass resolution. That said, final decisions remain contingent upon the approval of the Minister of Environmental Protection who retains final decision-making authority.

The mandate by which the Management Board operates is based upon the concepts of sustainability, adaptive management, and the meaningful consideration of local knowledge, values and needs of Little Red River and Tall Cree First Nation members (MOU 1996). This mandate recognizes the need for sustainable and adaptive management to ensure human use of the environment does not exceed the ecosystem's ability to perpetuate itself for the use and

enjoyment of future generations. Under this mandate the Board is also required to take into consideration social, cultural, economic and ecological factors when arriving at management decisions. This approach, therefore, requires a collective consideration of: biodiversity and landscape structure; inventories of endangered, threatened and rare flora and fauna; economic considerations related to local resource use and potential use based upon demographic change; and the socio-cultural aspects of resource use derived from the Cree perspective (MOU 1996).

While providing the LRRCN a more equitable role in management and decision-making, the cooperative management agreement falls short of securing any type of proprietary resource rights to the LRRCN. However, by redefining their relationship with the provincial government, Little Red River representatives were successful at negotiating a commercial timber permit for harvesting rights within the SMA. Through these negotiations Little Red River was successful at securing the rights to 350,000 m^3, or approximately one-half of the commercial timber in the SMA. By securing rights to a commercial timber supply of this size this allocation has in effect created a relationship of mutual dependence between Little Red River and non-Aboriginally owned forest companies who rely upon a long-term wood supply. As such, this dependence has provided the LRRCN considerable influence in forest management and planning. At the same time, these industrial partnerships provide the LRRCN with economic development and employment opportunities that are seen by some community members as having the potential to revitalize the local economy and promote community self-sufficiency.

In securing a commercial timber allocation, however, some concerns were expressed by community members regarding local involvement in the very industries that were seen by some as the greatest threat to community survival. That is, to many community members and specifically the elders, commercial timber harvesting is considered to be in direct conflict with the values and long-term interests of the LRRCN. However, with high unemployment and social assistance rates, coupled with the anticipated population growth of the LRRCN, community leaders were intent on finding a way in which "traditional" local concerns could be addressed while still providing much needed economic opportunities for community members. Thus the challenge facing the Little Red River leaders was how to accommodate the concerns and values of some community members without sacrificing economic opportunities associated with commercial forestry that are sought by others.

In partnership with the Sustainable Forest Management Network (SFMN), based at the University of Alberta, Little Red River has undertaken a process to address this question. Specifically, a research program was designed to establish a set of local criteria and indicators for sustainable resource management derived directly from broadly-based community perspectives. The intent of this community-wide assessment was to develop an accurate set of criteria and indicators that could be used to monitor and evaluate land management decisions with respect to the diversity and range of values nested within each of the three Little Red River communities.

Criteria and Indicators of Sustainability

Several processes are underway in various regions of the world to define sets of criteria and indicators for assessing social, economic and ecological sustainability (Prabhu et al. 1998).

Specific to forest management, the United Nations Conference on Economic Development (UNCED) (1992) put forward an argument for the need to develop national and international criteria and indicators that can define, monitor, and guide the management of the world's forests. Specifically, Chapter 11 of Agenda 21, 'Combating Deforestation' has called for "the formulation of scientifically sound criteria and guidelines for the management, conservation and sustainable development of all types of forests." Since then criteria and indicators have been applied to regional, national, and international levels of forest management throughout the world.

In Canada, national criteria and indicators were implemented in 1995. Following three years of nation-wide consultation with government officials, NGOs, aboriginal and non-aboriginal communities, foresters and academics, the Canadian Council of Forest Ministers produced a set of six national criteria and 83 indicators for evaluating forest sustainability (CCFM 1995). Specific to aboriginal peoples, Criterion Six addresses the need to recognize the rights of aboriginal peoples in the planning process (Criterion 6.1) as well as to involve aboriginal peoples in forest management directly (Criterion 6.2).

While these criteria and associated indicators have addressed sustainability at the national level, few examples have addressed local level information needs. While organizations like the Center for International Forestry Research (CIFOR) have made considerable advances towards the development of local level indicators in Indonesian communities, a review of the literature has found few examples of local level indicators being applied to forest management in Canada, with some exceptions being by Canada's Model Forest Program (e.g. Parkins et al., 2001), and no examples of criteria and indicators being applied in a community-based management context. It is at this local level of analysis that measurements become more precise and the impacts of forest management on the local population more transparent.

In light of these needs, we and the LRRCN set out to develop a set of local criteria and indicators of forest and community sustainability that are specific to the management of the Special Management Area. By eliminating largely non-relevant criteria and indicators developed at the national level, and extending beyond provisions of sustained timber yield, the LRRCN has undertaken an assessment of the environmental, social, cultural and economic factors associated with local forest management. This initiative has therefore been designed to facilitate a system of adaptive community-based management that is responsive to the values, expectations, and changing needs of community members.

Methodology

Prior to initiating a community wide assessment we were able to benefit from a significant amount of research already conducted by the LRRCN. Having established a research partnership with the Sustainable Forest Management Network in 1996, Little Red River has since undertaken a total of 20 social and natural science research projects. While the academic foundations of these investigations differ, a common theme throughout has been to provide a better understanding of the interface between the members of Little Red River and their surrounding socio-natural environment. This past research includes critical vegetation analysis and landscape mapping, traditional ecological knowledge of critical wildlife habitat (i.e.,

woodland caribou, moose, and woodland bison), and research regarding environmental and community health. Of particular value has been research conducted by Crabbe' (1998) that addresses the socio-economic changes affecting the Little Red River communities since moving predominantly onto the reserves. This research has provided a better understanding of how personal values may be evolving as the subsistence-based economy of Little Red River is influenced by wage earning opportunities. In addition, community land use and occupancy research, conducted in partnership with the University of Alberta School of Native Studies, has provided a base-line of information regarding past and contemporary land use patterns, including the location of seasonal camps, trap lines, and sites of cultural significance. Using this information base as a starting point, criteria and indicators research was initiated in May of 2000 and remains ongoing.

Combined with direct observation, interviews were conducted using semi-directed and open-ended questioning techniques to allow for elaboration and free-flow discussion. Research questions for eliciting individual response addressed generally: What is it about this area that you value? What needs to be maintained or protected for you to retain your relationship with the land? And what needs fixing or improved upon for the community to be healthy (socially, culturally, economically, environmentally)? These questions were administered to community members between the ages of 16 and 72, and were asked by a research team comprised of a community and a university researcher.

This interview technique, however, is not without its methodological limitations. Although the direct question serves as an accepted way of gathering information in western culture, this approach has at times proved ineffective with many aboriginal participants. Based upon community interviews it is our experience that some community members are more likely to 'talk around the question' until the information is provided rather than respond directly. Similar to Nelson's (1980) experience with the Inupiat of northwest Alaska, we have found that community members rarely give direct advice or tell another person what to do other than through narrative. Unfortunately, few researchers can fully appreciate the meaning and complexity of aboriginal narratives, a limitation that can often lead to misunderstanding. In addition, this method of inquiry asks community members to separate or compartmentalize specific components of the socio-natural environment. This effort to categorize information may in some ways conflict with the Cree worldview, a worldview that places an equal significance on all environmental features. Because of this holistic understanding of the environment, community members at times have had difficulty separating biophysical features of the landscape into distinct categories as well as segmenting the social, cultural, spiritual, and economic aspects of environmental interaction.

While not addressing criteria and indicator research specifically, Brunckhorst (2000: 50) has noted that reductionist methodologies that force the compartmentalization of the environment contributes to a form of Cartesian dualism that attempts to separate people from the environment. While elucidating some useful information, Brunckhorst (2000: 50) argues that by fragmenting aboriginal understanding of the functioning and complex environment, research findings often cannot be applied to the spatio-temporal context that is required for successful ecosystem management. For all of the above reasons, and by the very nature of criteria and indicators, we were concerned about forcing culturally inappropriate categorizations upon

community members. However, through a process of participatory action research, punctuated by a community driven research design, we feel an accurate documentation of community values has been derived. That said, eliciting full community participation must remain a continuing research concern.

Recognizing that the success of this program would be gauged on the level of community participation achieved, we knew it was imperative that our methodology address issues of representation from the outset. McDougall (2001: 63) notes that many of the factors that limit participation of certain subsections of a community are a result of basic methodological biases. These limiting factors include likeness bias where researchers focus on those community members who are most like themselves (i.e., age and gender); language bias where researchers fail to communicate in the native language either completely or effectively; and geographical biases where the assessment focuses on community members who are most easily accessible. Other factors that may limit community participation involve the varying cultural norms that influence patterns of public and/or private interaction. These cultural norms extend beyond interaction between community members and university researchers to include norms that dictate interaction between community members themselves. These cultural norms may dictate what is considered appropriate behavior between male and female community members, youth and elder interaction, or between family representatives. For example, Webb (2001) has noted that despite settling onto the reserves during the first half of the 1900s, Little Red River families continue to practice a "bush' settlement pattern where extended family members form "decentralized clusters" of housing and infrastructure. These on-reserve settlement patterns reflect important values of conflict avoidance and non-interference that continue to permeate the way of life of community members. Given this demarcation (based largely on political and kinship lines) an awareness of communal alliances remains essential if a 'community-based' forest management program is to be successfully promoted (Malleson 2001). These factors, together with issues of availability because of individual workloads and patterns of seasonal residence (i.e., residence at summer fish camps and winter trap lines) all require careful consideration in an assessment process.

Recognizing these methodological challenges and knowing that participation cannot always be achieved by providing identical opportunities for individual involvement, it was necessary to expand our assessment methodology to avoid reductionism and to enhance over-all community coverage. These methods involved making extended visits to seasonal camps, participating in subsistence activities, conducting community focus groups differentiated by age, gender and employment characteristics, accompanying male and female elders on transect or 'bush' walks, individual and group mapping interviews, and the administering of questionnaires by six (3 male and 3 female) community researchers representing each of the three communities. Further, because the criteria and indicators approach requires continued monitoring and evaluation, this research has emphasized a process of capacity-building and participatory action in order to help ensure research relevance as well as continuity.

From our initial assessment, 6 criteria and 62 associated indicators for community and forest sustainability have been identified. The criteria are: 1) the need to modify forest management operations to reduce negative impacts to wildlife species; 2) to modify forestry operations to ensure community access to lands and resources; 3) to provide protection to all

areas identified by community members as having biological, cultural, and/or historical significance; 4) to recognize and protect Aboriginal and Treaty rights to hunting, fishing, trapping and gathering activities; 5) to increase forest-based economic opportunities for community members; and 6) to increase the involvement of community members in decision-making.

Monitoring and Evaluation

Because this process was designed to respond to the ever-changing needs and priorities of community members it was critical to develop an evaluation framework capable of articulating value diversity, was transparent to both community members and resource managers, and would allow for ongoing learning, adjustment and improvement in the management process. In order to do so a 'sustainability matrix' has been developed that allows community members to see at a glance how individual priorities are, or are not being addressed in the management process (see Tables 1-6, below). These matrices serve essentially as feedback loops for system improvements through which local managers, as well as community members, can evaluate management and policy strategies. In addition, each matrix provides management recommendations deemed most appropriate by community members to attain specified or desired outcomes.

Each matrix is divided into six levels of management referral, which includes: 1) a **Criterion** representing a priority feature that warrants full consideration in the management process; 2) a **Critical Element** of the environment or a process in the management structure that needs to be removed, maintained, or put into place; 3) a **Local Value** defined by community members as needing protection or enhancement through management efforts; 4) a **Goal**, or a concise statement and central strategy for maintaining, protecting, or enhancing a Local Value; 5) an **Indicator** measuring advancement towards the attainment of the stated Goal for which progress can be measured and evaluated; and, 6) an **Action** specifying a specific plan of activities that must be implemented to achieve the stated Indicator.

For example, Table 1 (Criterion I) identifies the need to modify forest management operations in order to reduce negative impacts to wildlife species. Specifically, this table identifies woodland bison as a key indicator of ecological and cultural sustainability (see Table 1, B1). Because bison have long served as an important component of the Little Red River Cree culture, specific community members have developed a vast amount of knowledge regarding the species' breeding habits, behavior, and habitat requirements. Having also witnessed the effects of timber harvesting over the past 50 years, these same community members are also well aware of the resulting ecological impacts on the environment and specifically the impacts on bison habitat. While rarely targeting the preferred habitat of bison directly (habitat characterized as willow-dominated lowlands), forestry operations have affected these areas indirectly through up-land harvesting operations along the Caribou Mountain escarpment. One of the ecological impacts associated with timber harvesting has been the increased stream flow caused by clearcuts and inadequate buffers placed along the Caribou Mountain headwaters. Community members have witnessed changes in the ecological structure of the lowland areas, resulting from increased and inconsistent hydrological fluctuations. This has resulted in reduction of bison habitat through a combination of erosion and sedimentation, leading to temporary and possibly

permanent displacement of bison herds. Given these observations, specific management recommendations have been made that would limit timber harvesting along the Caribou Mountains slope as well as increasing streamside buffers to no less than 300 meters from each shoreline in order to offset increased drainage caused by clear-cuts (Table 1, E1). Similarly, Table 1, B2-E2 addresses the need to maintain areas of critical caribou habitat located along the Caribou Mountain slope. Specifically, local hunters have voiced concerns over the harvesting of mature conifer stands used by woodland caribou during winter months. Recognizing these concerns management recommendations have been made that call for long-term harvest rotation or a system of selective logging to be put into place for those identified areas, and particularly in elevations between 1500-2000 feet, where mature stands of conifer provide necessary thermal protection for wintering caribou (Table 1, E-2).

This evaluation framework has also enabled Little Red River to develop specific guidelines to safeguard sites of cultural, biological and historic significance located throughout the SMA (i.e., burial and sacred sites, areas of critical habitat, historic occupation sites). While Canada's 1995 National Forest Strategy makes clear industry's legal obligation to acknowledge and respect aboriginal and treaty rights to traditionally used lands and resources (including obligations to protect significant social, cultural, or spiritual sites), as well as to maintain areas of forested land for aboriginal subsistence purposes, the Strategy provides no specific guidelines by which to monitor industrial activities. Because of this limitation, Little Red River has established its own guidelines for site protection as well as measures to help ensure continued access to traditional lands. Through community consultation, Tables 2, 3, and 4 specify to community representatives and industry partners specific management requirements that have been designed to protect all sites deemed significant by community members. Further, these guidelines call for the cessation of particular industrial practices that are seen by some community members as impediments to land use and thus an infringement of Little Red River's Aboriginal and treaty rights (e.g., Table 4, B1-E1). Collectively, the recommendations made in Tables 1 through 4 are being digitized and implemented into a series of forest management plans that will enable the Co-operative Management Board, as well as community members, to see at a glance how managing for certain forest management objectives (e.g., annual allowable cut) will affect the priorities and interests of others (e.g., the availability of bison habitat) and visa-versa, thus allowing for more informed and transparent decisions to be made.

Beyond ecological considerations (in a strictly western sense) other community members have identified the need to increase forest-based economic opportunities. Specifically, Table 5 calls for education and training programs to be made available to community members as a means of promoting economic self-sufficiency (see B1-E1). To many community members education and training are considered essential to economic growth and alleviating many of the social and environmental pathologies associated with poverty. This issue is particularly relevant to the north Peace River region of Alberta where unprecedented industrial and technological growth is currently taking place. Recognizing the range of economic opportunities that are now becoming available (facilitated in part through the co-operative management agreement), community members have impressed upon community leaders the necessity for an educated, adaptable work-force that can take full advantage of regional employment opportunities. Conversely, these same community members have warned that, by remaining 'uneducated' and

largely 'unskilled' in relation to industrial needs, community members will have few opportunities to prosper.

Responding to these recommendations, Little Red River is establishing in cooperation with the SFMN and regional educational institutions a distance education and training program that addresses forest management specifically and other resource related opportunities more generally (e.g., carpentry and plumbing). The intent of this initiative is to increase Little Red River's level of participation in commercial forestry. Through the development of forestry education materials and training modules, community members now have access to education and training at five different levels of educational standing (K through Post Secondary) and delivered through on-site distance educational tools as well as through personal mentoring programs. Grounded in the premise of emancipation and empowerment this program is not directed towards change per se, but rather is to provide a greater range of options for community members in the future. Through its implementation this program has come to be viewed by some community members as a means of breaking the pattern of dependence long inherent in provincial and federal policy, thereby empowering community members to become socially and economically self-reliant.

Last, these matrices are being used to enhance community representation through specific participatory mechanisms. We too recognize the concerns of Porro (2001: 301) that participation can often lead to undesirable ends if exercised only through someone else's system of management. Therefore a framework has been established based on locally-defined mechanisms for community participation that are culturally and functionally specific to Little Red River. As outlined in Table 6, a framework has been introduced by which youth, women, elders, trappers, and family representatives can be actively engaged in decision-making and information dissemination. By increasing the level of participation among individuals and community 'factions' a greater understanding of forest use and systems of management is becoming available. Failing to take into account this plurality would no doubt leave this framework incomplete and susceptible to rejection. Through its inclusive nature, however, this framework provides a more encompassing assessment of the economic, environmental, and social factors associated with human-environmental interaction, thus allowing for a balance to be made between community sustainability and planned change. From an ethical, as well as practical, perspective the inclusion of marginalized or non-dominant community members in the management process can have an empowering effect by raising awareness of one's own situation (McDougall 2001: 57). While confronting power differentials may create additional challenges, the empowering effects of participation can also result in changes in the inequitable distribution of voice and the unsustainable status quo of resource management.

It is important to note that the results of this assessment (and decisions made from them) are not meant to represent a definitive set of criteria and indicators, but rather should be seen as an initial stage of an ongoing community-based management program. By recognizing the dynamics of local value formation, this phase of research represents an initial approximation of local values in an ongoing community-based assessment process. Seen in this context, criteria and indicators are being used locally as a tool for knowledge management, knowledge that is inherently incomplete but within which local managers can insert and extract information as it becomes available and more applicable to the sustainable management of the SMA.

It will, however, remain necessary for Little Red River to be aware of the many challenges that limit the way in which environmental monitoring and assessment programs have generally been conducted. For instance, Lindsay and Smith (2001: 7) argue that one of the primary impediments to effective environmental monitoring has been a general lack of adequate ecological baseline data necessary for making informed decisions, a limitation often resulting from ineffective means of linking ecological and social components of the environment. This criticism is shared by others (e.g., Berkes 1988; Jacobs and Sadler 1993; Sadler 1996) who argue that most environmental monitoring programs fail owing to the general exclusion of those most affected by development activities. While acknowledging that some level of community involvement is generally attained during the initial stages of program development, rarely are there any sustained efforts to elicit community participation nor, as Berkes (1998: 213) has noted, any efforts to anticipate and solve practical problems such as access to traditional hunting areas. This limitation, according to Colfer and Byron (2001: 276), can have significant cultural consequences, in that:

> When such knowledge is held by people whose voices are not heard and who have no recognized role in formal forest management, a valuable human resource is wasted. … Such knowledge is an important part of forest peoples' cultural repertoire and as such has implications for their own well-being. Global cultural wealth is diminished with the loss of indigenous knowledge."

Recognizing these challenges, this framework has been designed in a way that effectively links the ecological and socio-cultural components of the environment in a manner that allows for ongoing participation, evaluation, and system improvements. Further, by recognizing the general lack of ecological baseline data that had previously been available to decision-makers, this process makes accessible both the temporal (i.e., generational experiences) and spatial knowledge (i.e., expertise of the functioning landscape) of community members that will be necessary for making informed land management decisions in the future. Where this local knowledge had previously been shared among local hunters, trappers or family members exclusively, these insights are now being articulated to community representatives in the form of management recommendations. Thus by making local ecological knowledge available to the management process, the nested relationship between community members, wildlife habitat, and industrial development is being further clarified. As a result, decisions and/or trade-offs can now be made between habitat enhancement and economic development objectives through a framework that is transparent, accessible, and inclusive to all community members. Furthermore, plans are being formulated to restructure participation in the SMA planning process to reflect community viewpoints.

Conclusion

While there is a growing awareness that indigenous communities are socially heterogeneous, many people still do not understand quite how diverse these communities are and the implications this may have in participatory processes (Malleson 2001: 11). Serving too often as a catch-phrase, community participation remains ever-present in the rhetoric of resource

management. This indiscriminate use, according to Hernes and Sanderson (1998:5), has made the concept of participation virtually meaningless, with the effect of only softening the "top-downism" of resource management. As a result most indigenous peoples remain largely removed from the decision-making and policy-making process, while the totality of their concerns, values, and systems of knowing fail to be recognized, let alone applied, to the management process. Because of this exclusion, the management of indigenous territories continues to be dictated by 'professionally' trained resource managers whose interests often run counter to those of community members.

Increasingly, however, indigenous peoples are regaining direct control of their homelands and are now implementing new and innovative approaches to management. The Little Red River Cree Nation is representative of this operational and ideological shift in contemporary resource management. Building upon a cooperative management agreement signed between themselves and the Alberta provincial government, Little Red River has utilized this enabling political setting to implement locally defined management objectives. By adapting an international strategy to meet local needs, Little Red River has developed a participatory framework capable of integrating local knowledge, values, and concerns into an inclusive management process. Designed to provide 'individual' perspectives with a better understanding of the 'other's' point of view, a greater awareness has developed, thus allowing for a reevaluation of forest management and future policy formation. While it is unlikely that all matters of conflict will be resolved equitably, this process does allow for trade-offs to be made between conflicting values and personal objectives. Thus through the development of criteria and performance indicators, derived specifically from the community perspective, Little Red River has put into operation an ongoing system of self-improving feedbacks capable of assessing forest management as it relates to Little Red River culture and its continued land use needs. Therefore the challenge facing the people of Little Red River in the future will not be whether they can function consensually on all management issues, but rather how, with increased authority and management responsibility, they can manage internal and external plurality more effectively.

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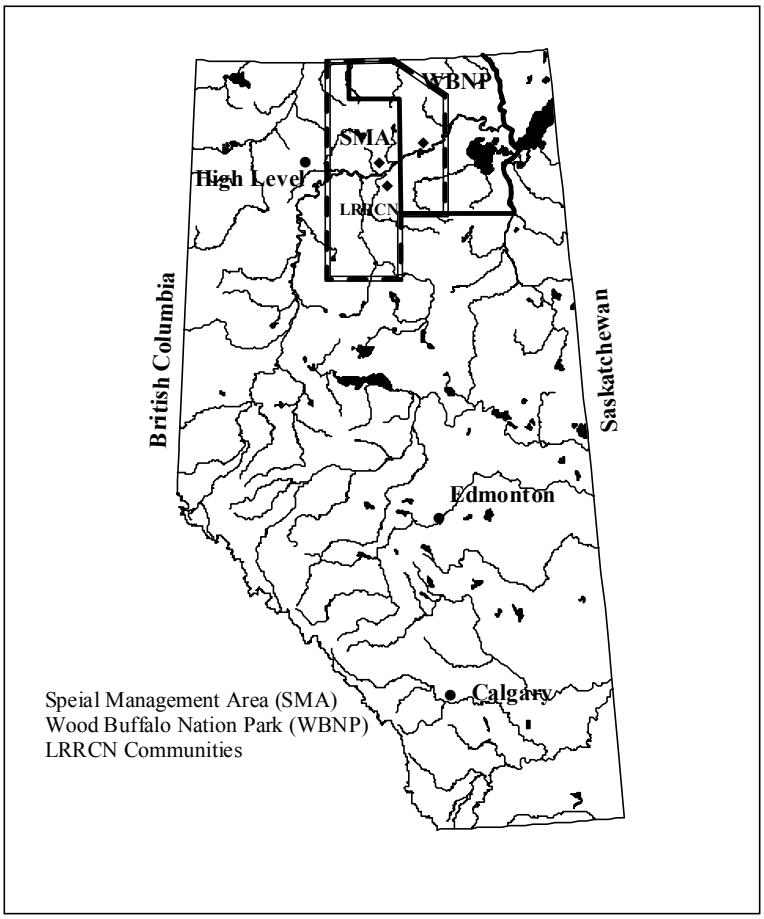
WBNP
SMA
High Level
LRRCN
British Columbia
Saskatchewan
Edmonton
Calgary
Speial Management Area (SMA)
Wood Buffalo Nation Park (WBNP)
LRRCN Communities

Table 1

Criterion I. Modify Forest Management Operations to Reduce Negative Impacts to Wildlife Species.				
A) Critical Element	**B) Local Value**	**C) Goal**	**D) Indicator**	**E) Action**
1. Species Diversity and Availability.	1.Healthy population of bison in the Caribou Mt. lowlands and drainages.	1.Limit clear-cut activity along the Caribou Mt. slope to ensure turbidity of drainage is not adversely affected by erosion and sedimentation.	1.Reduce timber harvesting along the Caribou Mts. slope to maintain lowland bison habitat.	1.Reduce harvesting along the Caribou Mt. slope and increase streamside buffers to no less than 300 meters in order to offset increased runoff caused by clear-cuts.
2. Species Diversity and Availability	2.Healthy population of woodland caribou.	2.Enhance critical habitat for woodland caribou.	2.Protection of critical habitat blocks of old growth conifer along the Caribou Mt. slope.	2.Long-term harvest rotation of critical conifer habitat along the Caribou Mt. slope, specifically in elevations between 1500-2000 feet.
3. Species Diversity and Availability	3.Availability of bison throughout the management area.	3.Protect and enhance bison range throughout the management area.	3.Protect bison migration routes.	3.Placement of protective zones along bison migration routes that run north-south between Fox Lake and Tall Cree.
4. Species Diversity and Availability	4.Healthy population of fox, coyote, mink, fisher, and lynx.	4.Maintain critical habitat for primary prey species (squirrels).	4.Protection of critical habitat of blocks of spruce (availability of cones) necessary for squirrel habitat.	4.Long-term harvesting rotation and staggering of cut-blocks to ensure the continued availability of spruce cones for squirrels – and thus predator species.
5. Species Diversity and Availability	5.Healthy population of moose.	5.Enhance critical habitat for moose ranging throughout the management area.	5.Limit the harvesting of white spruce along river drainages.	5.Limit harvesting operations along the Mikkwa River and expand stream-side buffers to no less than 300 meters from each shoreline.

Table 2

Criterion II. Modify Forestry Operations to Ensure Community Access to Lands and Resources.				
A) Critical Element	**B) Local Value**	**C) Goal**	**D) Indicator**	**E) Action**
1. Continued access to lands and resources.	1.Ensure travel is not impeded by forestry operations.	1.Modify silviculture methods to ensure continued access to lands and resources.	1.Discontinue the practice of scarification following harvesting as it impedes human and non-human travel.	1.* Utilize alternative silviculture methods: - Controlled Burns. - Hand scalping followed by hand seeding and planting.
2. Continued access to lands and resources.	2.Ensure travel is not impeded by forestry operations.	2.Maintain travel corridors throughout the management area for local hunters and trappers.	2.Expand buffers along creeks and streams to limit windfall across waterways.	2.Expand buffers on creeks, streams and rivers to no less than 300 meters from each shoreline.
3. Continued access to lands and resources.	3.Continued availability of balsam poplar throughout the management area.	3.Modify forest operations so as to ensure the availability of balsam poplar near trapline cabins and camps as balsam polar burns well when green with little sparking.	3.Continued availability of balsam poplar near trapline cabins and camps.	3.Protective buffer of no less than 200 meters around trapline cabins and camps to ensure the continued availability of balsam poplar.
4. Continued access to lands and resources.	4.Limit blow-down (wind velocity) of protective buffers in order to protect critical habitat and travel corridors.	4.Modify harvesting sequence and cutblock layout in order to limit blow-down.	4.Maintain stand integrity of buffers along critical habitat areas and travel corridors	4.Stagger cutblocks and expand buffers to no less than 300 m. from each shoreline along eastern end of cutblock.
5. Continued access to lands and resources.	5.Forestry operations should in no way obstruct hunting, trapping and camping trails.	5.Ensure that forestry operations do not obstruct community access trails.	5.Buffers along all known hunting, trapping and camping trails used by LRRCN band members.	5.Buffers no less than 200 meters should be placed along all known hunting, trapping and camping trails used by LRRCN band members.

Table 3

Criterion III. Provide Protection to all Areas Identified by Community Members as Having Biological, Cultural, and Historical Significance.				
A) Critical Element	**B) Local Value**	**C) Goal**	**D) Indicator**	**E) Action**
1. Areas of cultural significance are protected from forestry operations.	1.Protection of areas of natural and/or environmental sensitivity.	1.Modify forestry operations to ensure areas of natural and/or environmental sensitivity are not adversely affected by forestry operations.	1.Harper Creek caves are protected from resource development activities.	1.Protective buffer of no less than 300 meters around caves located along Harper Creek south of Fox Lake.
2. Areas of cultural significance are protected from forestry operations.	2.Protection of historical cabins and traditional settlements.	2.Cabins and settlements of historical and cultural significance are protected from forestry operations.	2.Protective buffers are placed around all cabins and settlements of historical and cultural significance.	2.Protective buffers of no less than 500 meters should be placed around settlement sites located at the confluence of the Mikkwa and Peace Rivers.
3. Protection of sites of biological significance	3.Protection of mineral licks throughout the management area.	3.Modify forestry operations to ensure mineral licks are protected from harvesting activities.	3.Protective buffers placed around mineral licks that are located throughout the management area	3.Protective buffers of no less than 300 meters should be placed around mineral licks.
4. Areas of cultural significance are protected from forestry operations.	3.Protection of all burial sites located through the management area.	4.All burial sites located throughout the management area are protected from forestry operations.	4.Protective buffers are placed around all burial sites located throughout the management area.	4.Protective buffers of no less than 200 meters should be placed around burial sites known to be located within the management area.
5. Areas of cultural significance are protected from forestry operations.	5.Protection of rare, endangered and medicinal plants.	5.Plants known to be rare, endangered, or used for medicinal purposes by LRR/TC band members should be protected from forestry operations.	5.Protective buffers placed around areas known to support rare, endangered and medicinal plants.	5.Protective buffers of no less than 100 meters should be placed around upland areas known to support rare, endangered and medicinal plants and no less than 300 meters for riparian zones.

Table 4

Criterion IV. Recognize and Protect Aboriginal and Treaty Rights to Hunting, Fishing, Trapping and Gathering Activities.				
A) Critical Element	**B) Local Value**	**C) Goal**	**D) Indicator**	**E) Action**
1. Continued ability to participate in subsistence activities.	1.Ensure forestry operations do not infringe upon Aboriginal or treaty rights.	1.Maintain or enhance opportunities to participate in subsistence activities.	1.Modify existing annual allowable cut to ensure subsistence activities are not limited by forestry operations.	1.Implement a selective logging program for the management area.
2. Continued ability to participate in subsistence activities.	2.Trapline areas remain productive and readily accessible to community trappers.	2. Maintain existing age structure and species diversity found within trapline areas	2.Long-term harvesting rotation in registered trapline areas.	2.Long-term sequencing and cutblock rotation within trapline areas. Implemented through a consultative framework between community trappers and Board representatives.
3. Continued ability to participate in subsistence activities.	3.Rights of trappers are recognized in the planning process.	3.Compensation for lost or reduced access.	3.Implementation of a trappers compensation program.	3.Implement a trappers compensation program for trappers affected adversely by forestry operations.
4. Continued availability of subsistence resource.	4.Priority use of large ungulates for subsistence use.	4.Limit poaching by non-local hunters of large ungulates.	4.Limit access to areas representing critical ungulate habitat.	4.Reclaim access roads leading to the Caribou Mt. slope.
5. Continued availability of subsistence resource.	5.Wild foods are utilized to their fullest extent.	5.Limit the illegal wastage of wild foods by non-local hunters and outfitters.	5.Community elders receive the meat harvested from trophy hunts.	5.Implement wild meat sharing program with commercial guides and outfitters.

Table 5

Criterion V. Increase Forest-Based Economic Opportunities for Community Members.				
A) Critical Element	**B) Local Value**	**C) Goal**	**D) Indicator**	**E) Action**
1. Community self-sufficiency.	1.Empowerment through education.	1.Provide community members with the education and training necessary to assume responsibility for forest management operations.	1.- Forestry educational program delivered at K through 12. - Delivery of a post-secondary training program.	1.- Implement a forestry education program in each of the LRRCN schools. - Deliver a post-secondary forest worker training program through Kayas College.
2. Community self-sufficiency.	2.Empowerment through employment and training opportunities.	2.Provide community members with on the job training opportunities in the forestry industry.	2.Training and employment program with industry partners.	2.In partnership with Footner Forest Products implement an employment and training program in forestry operations.
3. Community self-sufficiency.	3.Empowerment through capacity-building and marketable skill development.	3.Developing technical skills needed for forest management and planning.	3.Community members receive training in the technical and managerial aspects of forest planning and management.	3.Implement a GIS training program for community members. To be delivered on-site and at regional training centers.
4. Community self-sufficiency.	4.Empowerment through economic development.	4.Expand and diversify economic opportunities for community members.	4.Increase in the number of individually owned primary, secondary or value-added community services.	4.Promote value-added resource-based business opportunities with industry partners.
5. Community self-sufficiency.	5.Empowerment through employment and training opportunities.	5.Provide community members with on the job training opportunities in the forestry industry.	5.Training and employment program with industry partners – planning to production.	5.Implement an internship and job-shadowing program with forest industry partners.

Table 6

Criterion VI. Increase the Involvement of Community Members in Decision-Making.				
A) Critical Element	**B) Local Value**	**C) Goal**	**D) Indicator**	**E) Action**
1. Intra/Intra Community Information Exchange.	1.Equitable participation of community members in policy and decision-making.	1.Direct communication between industry and community members.	1.Recognized point of contact is established between industry and each of the three LRR communities.	1.Community-industry information liaison representing each of the three LRR communities should be appointed.
2. Intra/Intra Community Information Exchange.	2.Equitable participation of community members in policy and decision-making.	2.Industry goals and management plans are communicated to each of the three LRR communities.	2.Information is disseminated in a format accessible to community members.	2.Posters and newsletters for information dissemination.
3. Intra/Intra Community Information Exchange.	3.Equitable participation of community members in policy and decision-making.	3.Pluralistic participation on Management Board.	3.Community representation on the SMA Management Board is diversified.	3.Youth (3), Women (3), and Elder (3) involvement on SMA Management Board. (Rotated involvement)
4. Intra/Intra Community Information Exchange.	4.Equitable participation of community members in policy and decision-making.	4.SMA management objective are made more accessible to community members.	4.Forums to facilitate community participation in the management of the SMA are created.	4.Community Steering Committees should be created and comprised of family representatives.
5. Intra/Intra Community Information Exchange.	5.Equitable participation of community members in policy and decision-making.	5.Local ecological knowledge is given an equitable role in management and planning decisions.	5.Traditional ecological knowledge is used to inform management and planning objectives.	5.Implement a consultation program with community trapline holders.

Notes

[1] The Alberta Treaty Eight Health Authority estimated that the purchase price for a healthy store-bought diet in the community of Fox Lake is the most expensive in Alberta and a purchase price 3 times higher than in the capital city of Edmonton (Alberta Treaty 8 Health Authority 2000).

[2] Forest Management Agreements (FMA) are legal instruments issued by the Alberta Provincial Government to allocate long-term (20 year) harvesting rights to timber companies. The terms of the FMAs define the ground rules and conditions (e.g., annual allowable cut) by which timber can be harvested