ABORIGINAL FOREST PLANNING: LESSONS FROM THREE COMMUNITY PILOT PROJECTS

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Abstract / Résumé

A technique to facilitate the substantive involvement of Aboriginal communities in forest planning is evaluated. Three First Nations in interior British Columbia (BC), Canada participated in pilot applications of the Aboriginal Forest Planning Process (AFPP), including Skw’lax (Little Shuswap Indian Band), T’exelc (Williams Lake Indian Band), and TI’azt’en Nation. Community members were trained, supported, and monitored as they implemented this participatory decision-making tool in their communities.

Le présent article présente une évaluation d’une technique qui permet aux collectivités autochtones de participer de manière importante à la planification forestière. Trois Premières nations de l’intérieur de la Colombie-Britannique (C.-B.) au Canada ont participé à des projets pilotes de mise en œuvre du Aboriginal Forest Planning Process (AFPP), soit les nations Skw’lax (bande indienne de Little Shuswap), T’exelc (bande indienne de Williams Lake) et TI’azt’en. Des membres des diverses collectivités ont bénéficié d’une formation, d’un soutien et d’une surveillance pendant qu’ils utilisaient un outil de prise de décision participatif dans leurs collectivités respectives.

Introduction

Throughout British Columbia (BC), forest planning and management systems that bridge Aboriginal and western approaches are needed to overcome trust, ideological, cultural, and communication barriers. The development of collaborative relationships among First Nations, industry, and government agencies (Beckley, 1998); the implementation of national forest policies aimed at sustainable forest management (CCFM, 1998; Yamasaki et al., 2002); and the realisation of local level forest management goals (Pálsson, 1998; Natcher & Hickey, 2002) have all been impeded by these barriers. Planning processes are required that meaningfully involve Aboriginal people in resource decision-making (Warren, 1998), capitalise on the strengths of both science-based and Aboriginal knowledge systems (Treseder & Krogman, 1999), protect sensitive and confidential information (MacKinnon et al., 1999), and are adaptable to a diversity of cultural, environmental, and management settings (Michel & Gayton, 2002).

The Aboriginal Forest Planning Process (AFPP) is a participatory decision-making tool originally developed in 1999 to address these forest planning needs and to enhance co-management of the John Prince Research Forest (JPRF), a research and education facility located near Ft. St. James, British Columbia (BC) (Karjala et al., 2004). The AFPP emerged from ongoing research on the JPRF aimed at enhancing Tl’azt’en participation in decision-making on the forest. One objective of the research was to use a scenario planning approach and an analytical forest planning tool (Lurch) to simulate various management alternatives and possible future conditions (Dewhurst et al., 1999; Karjala & Dewhurst, 2003). In order to characterise a Tl’azt’en forest management vision, a methodology was required to translate available ecological, social and cultural information into quantitative, qualitative, and spatial criteria and indicators (C&I). The AFPP is the method developed for selecting, classifying, and organising community information (e.g., traditional use study interviews and maps, community interviews, and secondary sources) into sustainable forest management (SFM) C&I to direct and monitor strategic-level forest planning (Figure 1) (Karjala et al., 2004).

The application of the AFPP on the JPRF demonstrated it was a useful method for developing Aboriginal forest management goals, objectives, criteria, indicators, and strategies (Karjala et al., 2004). Four criteria themes and fifteen sub-themes were identified from Tl’azt’en archival information, and additional interviews and focus groups were used to identify forest management indicators. Community members found the AFPP was effective for information elicitation, management,
Flowchart demonstrating the AFPP information management approach. The AFPP is a bottom-up approach to generating criteria and indicators for strategic-level forest planning. Shading indicates the starting point when community information is aggregated to generate criteria, objectives, and goals, and to guide the identification of management indicators.

and application (Karjala et al., 2004). It assisted Ti'azt'en Nation and local resource managers in establishing and communicating their vision of sustainable forest management, building working relationships, engaging in mutual learning, and making shared management decisions, while still protecting confidential and sensitive information (Karjala, 2001).

Given the success of the original AFPP application and the historic conflict over forest management among forest industry, Aboriginal, and government groups in many areas of BC, further examination of the AFPP's effectiveness was warranted. The authors undertook to test the broader applicability and usefulness of the AFPP through formal evaluation, and to further refine it based on these findings. Our goals were to subject the AFPP to review by 30 community and technical experts throughout BC and to apply it in "real world" situations.

This paper is based on the results of three AFPP pilot projects undertaken with Skw'lax (Little Shuswap Indian Band), T'exelc (Williams Lake Indian Band), and Ti'azt'en Nation (Figure 2). In the spirit of action and reflection, these groups used the AFPP, critically examined the process and outcomes, and suggested adaptations. This paper examines the AFPP's effectiveness, focusing on implementation challenges and lessons learned from the pilot projects. Recommendations are made concerning future modifications and applications of the approach.
Figure 2
Location of three First Nation communities where the Aboriginal Forest Planning Process was applied and evaluated in British Columbia, Canada.
The AFPP Framework

The AFPP is based on two fundamental premises: local priorities, issues, and concerns provide a foundation for directing planning (Williams & Matejko, 1985; Lautenschlager, 1998); and decisions based on bottom-up approaches are the most relevant for achieving SFM (Sancar, 1995; Lautenschlager et al., 2000). The AFPP is designed to assist First Nations in undertaking community-based, analytical decision-making for sustainably managing forests on traditional lands. Several groups are involved in the process, including:

- **Analysts** - researchers and technicians from a First Nation who will implement the AFPP in their community;
- **The Local Advisory Group** - a small group of community experts consisting of, for example, Elders, traditional land users, local resource managers and administrators, youth, or loggers, who critically review and evaluate AFPP results;
- **Community Participants** - any community members interested in sharing their ideas on how to plan for the future of local forests;
- **The Technical Advisory Group** - a group of professionals from within and outside the community, such as biologists, foresters, or archaeologists, who provide specialised, technical support where needed; and,
- **Collaborators** - government agencies and/or forest tenure holders (e.g., forest industry, non-governmental organisations, communities, or other First Nations) who wish to engage in joint forest planning with a First Nation.

Pilot projects concentrated on implementing phase one of the AFPP, which consists of three steps: summarisation, compilation, and categorisation (Figure 3). The summarisation stage involves reviewing primary and secondary materials to identify information relevant to forest management.\(^2\) Primary materials are original information or raw data collected by others, while secondary materials are published summaries of these data. Three questions are used to guide this analysis: What is important to people in this community? What are their needs and concerns? What ideas emerge as solutions to some of their resource and social problems? This analysis is broad so as to capture a complete picture of Aboriginal values directly or indirectly related to forest management. During the compilation stage, summaries are compiled into tables according to criteria themes, sub-themes, and descriptions; management indicators; and management actions. These tables provide a comprehensive overview of local knowledge, issues, and concerns, as well as an indication of commonly held values and evidence of how perspectives differ among community groups. Traditional use maps are
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Figure 3
Flowchart Illustrating AFPP Phases and the Roles of Various Participants

COMMUNITY LEADERS

A. Provide evaluation and recommendations to analysts

ANALYSTS

A. Generate criteria, indicators, and management actions from primary and secondary materials

B. Revise criteria, indicators, and management actions based on Community Advisory Group feedback

C. Revise and verify criteria, indicators, and management actions based on Community Participant feedback

COMMUNITY PARTICIPANTS

COMMUNITY ADVISORY GROUP

D. Produce final products portraying the community’s forest management vision and strategies

TECHNICAL ADVISORY GROUP/COLLABORATOR SUPPORT

E. Potential Applications of AFPP Results
- incorporation of results into analytical forest planning and visualisation tools
- forest management on reserve land
- development/enhancement of co-management, joint ventures, or community forests
- forest certification
- treaty negotiations or implementation of Interim Measure Agreements
- cross-cultural awareness raising and extension strategies
also assembled at this stage to develop location-specific forest management objectives. Map themes are generated on mylar overlays (e.g., hunting and trapping areas; fishing sites; cultural, spiritual, and archaeological sites; and food, medicine, and material plant gathering areas). During the categorisation stage, in order to facilitate data management, compiled information is divided into three C&I categories: spatial, qualitative, and quantitative (Prabhu et al., 1999; Varma et al., 2000; Karjala et al., 2004).

In the second phase of the AFPP, the Community Advisory Group reviews and provides feedback on initial criteria, indicators, and management strategies to elaborate and strengthen the analysis (Figure 3). After any necessary changes are made and this group is satisfied, feedback is then elicited from Community Participants. Following any further changes, the community’s vision of sustainable forest management is finalised. Throughout the review and refinement process, the Technical Advisory Group and Collaborators provide support and expertise when requested. The results of the AFPP can be applied in several ways, such as the development of alternative forest management scenarios, incorporation of results into analytical forest planning and visualisation tools, development of joint management plans with collaborators, support for treaty negotiations or Interim Measure Agreements, community development initiatives, or defining cross-cultural training and extension strategies.

Community Profiles

Skw’lax

Skw’lax, or Little Shuswap Indian Band (LSIB), is part of the Secwepemc Nation and the Salishan linguistic group. The main community, Quaaout, is located on Little Shuswap Lake, southern interior BC. Five reserves, totalling 3126.1 ha are situated within Skw’lax traditional territory. LSIB has approximately 290 band members governed by a Chief and Council. They have no tribal council affiliation and have not entered into treaty negotiation with the provincial and federal governments. Instead, they are pursuing land and economic development through a series of management and co-management agreements as a base for future negotiations. LSIB has an Aboriginal Interest Department (AID) charged with representing Skw’lax on a broad array of issues from fisheries to forestry to economic development. For instance, AID implements a referral system dealing with Forest Development Plans and Archaeological Impact Assessments, participates in the implementation and monitoring of regional land use plans, and is working with BC
Parks to create an agreement on co-management of local protected areas. LSIB has undertaken numerous forestry initiatives, namely a logging company, an industrial park devoted to forest products, a road and bridge building company, a woodlot license, a resort lodge, cultural tourism, non-timber forest product enterprises, development of a back-country cat-ski area, and development of a wood waste bio-reactor. Traditional uses of the forest predominate; for example, many people harvest saskatoon berries, soopallallie, and huckleberries; hunt moose and deer; make birch bark and pine needle baskets; and use the forest for spiritual and contemplative pursuits. Through their participation in the AFPP pilot project, SkW'lax anticipated developing an improved model for forest co-management.

T'exelc

T'exelc, or Williams Lake Indian Band (WLiB), is a member of the northern Secwepemc Nation and the Salishan linguistic group. Located in the Cariboo-Chilcotin region, T'exelc have eight reserves ranging in size from 2.4 ha to 1645.3 ha, including fishing sites, village sites, and agricultural parcels. Of 470 band members, approximately 188 T'exelcemc live on the main reserve located at Sugar Cane, BC. WLiB is governed by an elected Chief and Council who take direction from members, a Home Team involving representatives from a cross-section of the community, and a Family Council comprised of two individuals from each of 13 core families. Although severely impacted by contact and the colonial experience, traditional T'exelc land use patterns (e.g., hunting, fishing, plant gathering, and ceremony) remain largely intact. Through treaty settlement, WLiB intends to regain more control over lands, resources, and the governance of its people. Current community development objectives include: capacity building, participating in provincial land use planning, realising increased benefits from forestry tenures, achieving substantial agreement on land settlement, fostering better inclusion of off-reserve members, improving relationships with regional/municipal governments, increasing support for Elders, and enhancing opportunities for youth. The T'exelc Natural Resources Department focuses on land use planning, treaty negotiation, resource management, geographic information systems, research, and governance. Forestry is the main development activity monitored by this department, as it has the largest cultural, environmental, and economic impact on the Secwepemculecw (traditional territory). In terms of forest related development, WLiB currently operates a logging company (Borland Creek Logging, which has secured timber supply through three woodlots, salvage operations, and joint ventures), a value-added mill (Sugar Cane
Wood Products, a joint venture with Jack Pine Timber producing primarily pallet wood), a campground (Chief Wil-Yum Campground), a lease and employment agreement with Pioneer Log Homes, and a lease with Triad Speciality Wood Products. T’exelc felt the AFPP pilot project could provide an avenue to voice their ideas and concerns, and to increase their involvement in forest management decision-making in British Columbia.

**Tl’azt’en Nation**

Tl’azt’en Nation, located in central interior BC, is affiliated with the Carrier Sekani Tribal Council through the treaty process and is part of the Dakelh linguistic group. Tl’azt’en Nation is comprised of four villages, supporting a population of 640 people; approximately 650 Tl’azt’enne reside off-reserve. Forty-seven reserves totalling 2422.26 ha and ranging between 0.4 ha and 817 ha are scattered throughout the 6560 km$^2$ traditional territory (Morris & Fondahl, 2002). Tache is the administrative centre of Tl’azt’en Nation, while the remaining members live year-round on the Binche (Pinchi) and Dzitl’ainli (Middle River) reserves, and seasonally on the Kuzche (Grand Rapids) reserve. Tl’azt’en reserve lands are currently under federal jurisdiction and are administered by Tl’azt’en Nation, although this relationship is subject to ongoing treaty negotiation. Despite this uncertainty, the majority of Tl’azt’en traditional territory is under tenure to industrial forestry companies, with two exceptions: the JPRF and Tree Farm License 42 (TFL 42). In a move towards greater self-sufficiency, Tl’azt’en Nation obtained TFL 42 in 1982 and established Tanizul Timber, a locally owned and operated forestry company. Despite the opportunity to implement Aboriginal forestry on TFL 42, Tl’azt’en Nation has faced many challenges in successfully incorporating community interests into its decision-making (Kosek, 1993; Nathan, 1996). In 1990, to create additional employment, Tl’azt’en Nation opened a sawmill operation, Teeslee Forest Products, which shut down in 1998 due to outdated technologies, a slumping forest industry, and a lack of management expertise (Booth, 1998). In 1994, a value-added facility, Tl’azt’en Cabinet Shop, was opened in Tache; it has since burnt to the ground. In 1998, a division called Tl’azt’en Woodlands was formed to establish logging and silviculture (e.g., brushing, thinning, tree planting) contracts with licensees operating in Tl’azt’en traditional territory and to secure local forestry jobs. In addition, a number of community members operate privately owned silviculture contracting businesses. Tl’azt’enne rely heavily on surrounding forests; for instance, members of Tl’azt’en Nation operate 30 keyohs (family traplines), the summer salmon harvest on Nak’al Bun (Stuart Lake) is a dietary main-
stay, and the majority of TI’azt’enne active in the labour force are seasonally employed in the forest industry. In 1998, TI’azt’en Nation established a Natural Resources Department that administers their forestry, fisheries, and traditional use programs. The Forestry section focuses on land use decisions within TI’azt’en traditional territory and attempts to work with keyoh holders and other TI’azt’enne to assess the impacts of forestry activities and, with the provincial government and timber licensees, to ensure that decision are in keeping with TI’azt’en priorities and values. For TI’azt’en Nation, the AFPP pilot project provided an opportunity to address difficulties incorporating TI’azt’enne worldviews and knowledge into forest management. Through their participation, TI’azt’en Nation hoped to build local capacity in land use planning and to develop guidelines for future TI’azt’en forest management.

**AFPP Training and Implementation**

In each community, Chief and Council and the Natural Resource Co-ordinator (with input from researchers and community members) selected a local AFPP analyst. Selection criteria included awareness of local culture, land-based skills, previous research experience, previous experience with forest management issues, ability to access the variety of community perspectives, oral and written communication skills, computer skills, interest, motivation, and dedication. Analysts functioned as cross-cultural interpreters, research co-ordinators, interviewers, transcribers, data analysts, administrators, report writers, and extension agents.

Analysts participated in a 4-day AFPP training workshop that addressed the following topics:

- an introduction to sustainable forest management, criteria and indicators, and natural resource planning;
- secondary research concepts and terminology;
- library, archival, and Internet research approaches and techniques;
- identification and evaluation of secondary information sources;
- computer and word processing skills;
- qualitative data analysis techniques, reflexivity, and reliability checking;
- how to identify, summarise, compile, and categorise community criteria and indicators for forest planning; and,
- how to summarise and compile traditional land use and occupancy information to create resource management zones, emphases, and treatments using qualitative mapping techniques.
Efforts were made to provide a creative and appropriate learning opportunity for AFPP trainees using a guiding structure suggested by DeMello et al. (1994). The program was intended to reflect personal needs in four dimensions: physical, mental, emotional, and spiritual. Training was held in a variety of settings that affirmed Aboriginal culture and/or provided direct experience, including out in the forest, in local libraries and archives, and at the University of Northern BC (UNBC) First Nations Centre. Experts (e.g., archivists, librarians, researchers, planners, and forest managers), people who could share their knowledge using a diversity of teaching styles and techniques, instructed the analysts. Efforts were made to actively engage the analysts in the learning process, to recognise and validate their experiences, and to encourage them to learn from each other. Attention was focused on providing a comfortable and supportive environment (e.g., sensitivity to the implications of words and actions, development of a group identity, use of humour, and opportunities for spontaneity and fun). Time was scheduled into the training calendar for enjoyable group pursuits and informal socialising. Analysts’ accomplishments were celebrated and our appreciation demonstrated through a group dinner, acknowledgement of contributions, and gifts.

Following the training session, analysts returned to their communities to apply the AFPP. This occurred over a five- to nine-week period. Throughout the study, analysts maintained a close partnership with researchers who functioned as technical and personal support, and role-played as collaborators responsible for incorporating community information into strategic level forest plans. Each AFPP pilot project analyst undertook several tasks:

- **Awareness raising**: communicating project purpose, goals, methods, needs, and desired outcomes to local leaders, decision-makers, and community members;
- **Data management**: identifying, collecting, organising, and prioritising secondary information sources relevant to forest planning;
- **Data preparation**: transcribing, translating, typing, editing, and/or reproducing primary or secondary materials;
- **Familiarisation**: reviewing all information sources and indexing a sub-set of the data into initial criteria and indicator themes;
- **Data analysis**: summarising data into community criteria, indicators, and strategies for forest management, and creating thematic map overlays; and,
- **Data classification**: comparing and contrasting codes, establishing patterns in the data (e.g., recurring themes or relationships),
compiling information into tables, categorising C&I, and mapping resource management zones and describing their emphases and treatments.

Methods

Data Collection

Throughout the AFPP pilot projects, evaluations were systematically collected using four methods: structured journal writing; individual, semi-structured interviews; participant observation; and focus groups. A community-based research approach guided research design. Several participatory elements were incorporated into the present study, including establishment of a co-operative research venture with each First Nation, meaningful involvement of participants at major research stages (e.g., research design, verification, and evaluation), employment of local researchers and co-ordinators, provision of training opportunities, guaranteeing community control and ownership of information, and nurturing self-identity and empowerment as described by Ryan (1994).

Journal Writing

The journal was designed to capture analysts' feelings, experiences, and ideas as they applied the AFPP. It consisted of four parts: a log, jottings, a diary, and field notes. The log was a running account of how analysts planned to spend their time, what they actually did, and what practical constraints or opportunities affected their work. Jottings were recordings of key words and phrases - triggers to aid later recall of detail analysts did not have time to document. The diary provided a personal space to chronicle experiences, feelings, and perceptions of self and/or others. Notes were focused on collecting analysts' observations and ideas. They included: methodological notes on the strengths and weaknesses of the AFPP, the impact of participation on analysts, and suggestions for modifying the approach; descriptive notes based on analysts' observations of "what's going on"; and, analytic notes developed through reflection and critical evaluation of their experiences. Analysts wrote in the journal on a daily basis; notes were hand-written as analysts did not have reliable access to computers after work hours. Journals were produced in a colourful, user-friendly booklet format. It was intended that analysts spend 45 to 60 minutes each day writing in their journals.

Interviews

Interviews were conducted at the conclusion of each pilot project to
assess and explore each AFPP application. Interviews were conducted individually, to preserve analysts' independence and anonymity, in two stages. Each interview was preceded by an informal discussion between the researcher and analyst regarding the purpose of the interview and the type of information sought. Days before the interview, researchers provided each analyst with interview questions for her/his consideration and preparation. Analysts signed a written informed consent form describing the future uses, storage, and access of their information. The second stage of the interview process involved a pre-arranged meeting to complete the interview. English was the language of communication and all analysts agreed to audio-taping. Researchers also took notes. Interviews were conducted in settings where the analyst was comfortable.

Semi-structured interviewing techniques were employed as recommended by Bernard (1995) and Smith (1999). Interviews were conducted so as to offer qualitative and exploratory insights into the effectiveness of the AFPP. Semi-structured interviewing gave each analyst freedom to decide which subjects were important, to present information in a manner consistent with the oral tradition, and to talk about pertinent issues that were not envisaged when preparing the interview guide. This approach also allowed researchers to probe into interesting and relevant responses. Taped interviews were transcribed and checked by researchers. A verification process was employed to ensure that interviews were transcribed without losing or distorting meaning. Analysts reviewed transcripts to guarantee accuracy and completeness.

Participant Observation

Participant observation data were collected systematically in two records during the pilot projects: field notes on research events and personal journals documenting the authors' experiences. The authors' dual roles as researchers and as participants in project activities affected the type of data collected. As natural participants in the system, researchers established rapport and trust with analysts thereby reducing reactivity. Interacting in "at work" settings provided an excellent stimulus for discussion, sharing, and learning.

Focus Groups

Analysts, First Nation leaders, and community research coordinators, participated in three, 2-hour focus group meetings to evaluate the AFPP pilot projects and to verify preliminary research findings. One topic was explored per meeting. Interactions among focus group participants revealed additional information not presented in the inter-
views. In this interactive setting, a form of collaborative mental work was observed as participants built on each other’s thinking to reach consensus that no one individual would have articulated on his/her own. The principal researcher functioned as the focus group moderator, facilitating discussion, encouraging everyone’s participation, asking prompting questions to elicit expansion and clarification on interesting topics, and maintaining focused conversation (Krueger & Casey, 2000). Aboriginal and non-Aboriginal assistant moderators took notes, recording overt statements, expressions of emotion, energy levels, and the roles played by discussants.

Data Analysis

Four sources of data (3 interviews lasting from 2 to 3.5 hours, 3 analyst journals consisting of 60 to 105 pages, participant observation notes, and focus group notes) were analysed according to established qualitative data analysis procedures (Bryman & Burgess, 1994; Huberman & Miles, 1994). The principal researcher performed content analysis on data sources. The overarching goal of content analysis was to maximise the quality of findings and present them in a concise, clear, and understandable manner.

Content analysis was carried out according to the following steps. Before beginning the process of sifting and sorting data, the principal researcher became familiar with the range and diversity of responses, as recommended by Morse (1991) and Ritchie and Spencer (1994), by listening to tapes, reading journals and transcripts, studying observational notes, and conversing with AFPP analysts. Next, an index was constructed using issues introduced in journals or interviews via research questions. Materials were then studied line-by-line, and responses coded by distinguishing unique comments and determining if subsequent comments belonged with these earlier ideas or represented new thinking. An alphanumerical code was assigned to each comment in the margins of the journal or transcript to either show its uniqueness or its affinity with previous statements. By adopting this annotated approach, the process was made visible and accessible to others. Each new code and its corresponding summary statement were recorded.

There was a progressive expansion in detail as additional journals and transcripts were assessed. Subsequently, framework analysis was undertaken using the methods of Ritchie and Spencer (1994) and Merriam (1988). Through the process of ‘charting’, codes were rearranged according to recurrent themes and considerations about how to present and write up the study. This analysis was mainly thematic (for each theme across all respondents). Illustrative passages for possible use as quota-
tions were recorded. Finally, the data set was 'mapped and interpreted' as a whole (Ritchie & Spencer, 1994). Piecing together this overall picture involved several logical and creative pathways: reviewing the coding frameworks, charts, and quotes; searching for patterns, associations, and connections; and comparing accounts and experiences. The authors' interpretation and elaboration of this analysis were influenced by their observations of AFPP analysts and their role as trainers, technical support, and collaborators.

Three reliability checks were performed on content analysis of journal materials, interviews, and notes, including inter-rater reliability tests, AFPP analyst checks, and peer debriefing (Olesen et al., 1994; Armstrong et al., 1997). The purpose was to ensure researchers did not unduly bias the final outcome by the judicious coding and summarising of information.

Responses from analysts are presented in narrative form throughout the paper. This provides added detail, allows analysts to speak directly about their experience, and presents readers an opportunity to critically assess their accounts. All analyst quotes appear in italics and are anonymous to preserve confidentiality.

Results

Accomplishments

Results show that the AFPP was useful for establishing and communicating Aboriginal forest management goals, objectives, criteria, indicators, and strategies. Analysts used a variety of primary and secondary material, including: Traditional Use Studies (TUS) (e.g., map biographies), Archaeological Impact Assessments, community-based research (e.g., Elders' stories), external research (e.g., university and government projects), community-based secondary sources (e.g., Band and Resources Strategic Action Plan), and external secondary sources (e.g., Shuswap Cultural Heritage Overview, Shuswap Chronicles). Four criteria themes and 14 sub-themes were identified from Tl'azt'en archival information; four criteria themes and 15 sub-themes were identified from T'exelc archival information; and five criteria themes and 21 sub-themes were identified from Skw'lax archival information (Table 1 and Table 2). All analysts identified relevant management indicators and management actions (Table 3).

Analysts characterised the AFPP as an effective, community-based forest planning and management tool. They felt it provided a clear framework to document information and present it to the community, external managers, and decision-makers. Analysts saw how the AFPP could con-
tribute to existing planning initiatives such as forest certification, the Forest Development Plan (FDP) review process, Land and Resource Management Plan (LRMP) monitoring, and treaty negotiation. They believed the AFPP would improve working relationships with local timber licensees and that it represented progress compared to existing consultation approaches. By drawing together diverse information sources, analysts said the AFPP developed comprehensive, well justified First Nation forest management goals and strategies. They expected this would increase their First Nations' ability to participate as equals in the planning process and to gain recognition and respect for their perspectives. Analysts believed the AFPP presented a useful way to combine First Nation knowledge, values, and beliefs with scientific information. By increasing communication, analysts hoped cross-cultural understanding, trust, and goodwill would also increase.

Analysts felt the AFPP was efficient in terms of time and resources. It built up community archives; identified gaps in information; and efficiently used Elders' and local experts' time. The AFPP gave analysts a way to apply previously unused information to resource management; it protected sensitive and confidential local information, while still allowing information sharing with outside groups. Analysts found the use of spatial, qualitative, and quantitative C&I was a meaningful way to document and present local information; it allowed 'outsiders' to give local values and concerns effective consideration, hopefully increasing First Nations' influence on decision-making. Transparency and flexibility were identified as fundamental advantages of the AFPP. Analysts indicated that their ability to track the use of local information at each planning stage, to demonstrate how people's input was organised and applied, and to constantly update and revise the C&I framework based on new information was critical. Analysts felt the AFPP presented new possibilities for working together where confrontation and misunderstanding between government, industry, and First Nations could be minimised.

"Everything I've done here is solid. It's all on paper. People can see it.... It will give [us] an edge.... With all the research and the breakdown of information [I can] identify certain areas and what values are [important] in them. I think once this is done I can use it with licensees. It's a good tool to have. I've already told them what I'm doing with [the AFPP] and they support me. It is going to help us out in the long run.... It has already strengthened our relationships.

[The AFPP] provides us with the ability to communicate with [resource managers] on their own level; to provide accurate and consistent information relating to specific areas and
sites; to produce feedback and input with confidence and bonafide sources; and to develop faith and trust with each other.... The process is very valuable to First Nations. This process will provide a framework to be able to use the data Bands have regarding the resources and activities within their traditional territories. It will develop a big picture of community values and goals.

I understand that there are community members, young and old, who are valuable sources of information as traditional land users. There are hunters as well as berry pickers, people who do basketry and people who fish, and they all get their resources from the forest.... I think the [AFPP] has the capacity to pull the people with the knowledge forward.... If we apply the AFPP, we can [make decisions in an] educated, knowledgeable way.

There’s a lot of good information but it’s getting overlooked because it’s not in a useable format. Well, the AFPP is an excellent format to make it usable. You don’t have to worry about your Band member saying, ‘My name’s going to be in there! I don’t want everybody knowing this or that.’ And that’s the concern. They want their information out, but they don’t want it identified. With the AFPP you’re not identifying anyone. It’s great because you are bringing information out and it’s relevant and it’s important and it’s specific.... The AFPP makes our [concerns and recommendations] more credible ....it actually gives us some support behind our statements.

Limitations

Despite the AFPP pilot projects’ overall success, analysts did encounter obstacles. Data analysis revealed seven problems that challenged implementation. These relate to information quality, information access, information management, data analysis procedures, personal problems, capacity, and communication. A summary of each issue follows.

Information Quality

In some cases, analysts had difficulty evaluating the quality of information sources; details concerning research design, data collection, data analysis, verification, and authorship were missing. They found that the quality of primary materials was variable and depended on two major factors: the experience and knowledge of interviewees and the skill of
Table 1

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<td>Raspberry</td>
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<td>Roads</td>
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<td>Cabins</td>
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<td></td>
<td>and seasonal habitats</td>
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<tr>
<td></td>
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<td>document Aboriginal place</td>
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<tr>
<td></td>
<td></td>
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<td>take only what you need</td>
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<tr>
<td></td>
<td></td>
<td>rotate and rest areas</td>
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<tr>
<td></td>
<td></td>
<td>consider seasonal lands</td>
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<tr>
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<td>use patterns</td>
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Example compilation table of criteria themes, sub-themes, and categories identified from secondary information during the Skw'läx AFPP pilot project.
Table 2

<table>
<thead>
<tr>
<th>Theme</th>
<th>Sub-theme</th>
<th>Criteria</th>
<th>Category</th>
<th>Description</th>
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<td>Balsam</td>
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<td>rails for fencing</td>
<td>T. Josie (15)</td>
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<td>shakes</td>
<td>F. Denny (8)</td>
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<td>pitch</td>
<td>D. Dickie (11)</td>
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<td>fir boughs</td>
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<td>moose</td>
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<td>ling cod</td>
<td>R. Michel (10)</td>
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<td>suckers</td>
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<td>steelhead</td>
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<td>Cultural Heritage Overview (p.19)</td>
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<td></td>
<td>share fishing sites</td>
<td>F. Denny (8, 26)</td>
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<td></td>
<td>share fish catch</td>
<td>P. Johnson (29)</td>
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<td>blueberries</td>
<td>E. Nicole (9)</td>
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<td>raspberries</td>
<td>S. Dickie (11)</td>
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<td>chokecherries</td>
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<td>huckleberries</td>
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<td>strawberries</td>
<td>M. Netruh (27)</td>
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</table>

Example compilation table of criteria themes, sub-themes, categories and descriptions identified during the T'exelc AFPP pilot project. By documenting source information, criteria and descriptions can be traced back to the original records. Respondent names were changed to protect anonymity.
<table>
<thead>
<tr>
<th>Criteria Themes</th>
<th>Wildlife sub-themes</th>
<th>Description</th>
<th>Management Indicator</th>
<th>Source</th>
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<tr>
<td>Resource and Environmental</td>
<td>moose</td>
<td>food and material uses</td>
<td>amount of protected riparian area</td>
<td>H. Jensen (1), R. Stuart (25), AIA2 (p.32)</td>
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<td>Concerns</td>
<td>moose</td>
<td>food and material uses</td>
<td>amount of area in early seral</td>
<td>J. Prince (6), L. Dunsmier (2), Elders (3)</td>
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<tr>
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<td>deer</td>
<td>food and material uses</td>
<td>amount of area in willow and alder stands</td>
<td>T. Daniels (41), C. Richard (23), G. Francis (13)</td>
</tr>
<tr>
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<td>caribou</td>
<td>food, medicine and material uses</td>
<td>amount of area in pine flats</td>
<td>Shuswap Chronicles (p. 7, 9), A. Aire (4)</td>
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<tr>
<td></td>
<td>bear</td>
<td>food, spiritual and material uses</td>
<td>amount of area in old growth</td>
<td>W. Quinn (16), M. Jared (5)</td>
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<tr>
<td></td>
<td>bear</td>
<td>food, spiritual and material uses</td>
<td>amount of area in early seral</td>
<td>W. Quinn (40), H. Prince (47)</td>
</tr>
</tbody>
</table>

Example categorisation table of quantitative criteria and indicators identified from community archives and secondary materials during the Skw' lax AFPP pilot project.
interviewers. In each pilot, it was found that different age groups, genders, and families held knowledge differentially. In addition, although every person was a potential traditional knowledge holder, each community had recognised local experts. Acculturative pressures had also acted unequally in pilot communities; some community members experienced residential schooling, language loss, and disrupted access to family territories, while others did not. Existing research was determined to be biased by interviewers in several ways related to their interview style (e.g., interruptions, leading questions, lack of probing), insufficient knowledge about the subject matter, failure to build a trusting relationship with respondents, inconsistency, subjectivity, and reactivity. Analysts also identified research design flaws that impacted the quality of primary materials. The use of directed, closed-ended questions discouraged response; the use of English limited some individuals in expressing the complexity of their thinking; and discouraging a narrative style limited Elders’ communication. Analysts recognised numerous information gaps; for example, the site-specific nature of TUS excluded general discussion of important areas.

Stories didn’t have any source information. I didn’t know who told the stories, who translated and transcribed them, the recording dates, or if anybody checked them over with interviewees. This made it hard to evaluate the quality of this source.

I knew the people [being interviewed] so I knew that the information that they have was very valuable, but it wasn’t getting documented. It wasn’t coming out. The interviewer wasn’t asking for the information. I felt they were misleading people and people were prompted. They felt they had to provide ‘the right answer.’

Analysts felt that the quality of secondary materials varied as well. They identified sources that contained unintentional misinterpretations, or were developed for specific political, ideological, or economic purposes, resulting in the distortion of facts or a failure to report them in full. For example, sources based on reports from non-local, non-Aboriginal people marginalised the impacts of forest harvesting, log booming, and railroad construction on salmon runs and food fisheries. Furthermore, some older secondary sources were not particularly relevant; community values and needs had changed with time.

Archaeological Impact Assessments don’t gather all the available information. Maybe archaeologists don’t know what to look for or what they’re looking at. I think evidence is misinterpreted. Maybe they’re not picking the right spots to look
Information Access

All analysts experienced problems accessing information, particularly TUS and other community-based research. Two communities either lacked protocols for the use of restricted information or failed to apply them. Analysts confronted information-sharing concerns on several fronts. First Nation administrators worried about the confidentiality, control, ownership, and misinterpretation of information, as well as the possibility of compromising interim measures, legal actions, or treaty negotiations. In some cases, community members expressed concern, fearing that their identities would be revealed or that information would be applied to damage and restrict local life-ways. One analyst found that former community-based researchers were very proprietary: *they just didn't want to let go of the information.* Analysts believed that their work was also impeded by lack of information sharing among First Nations with adjacent territories, or members of the same Tribal Council.

A few [community members] didn't like it. They had it in their heads that this information is my information and I want no one to use it.

The past project holders had the most concerns with it. When I finally had to go to the interviewees and ask if this was a problem, I explained the project, what we do with the information, where we would go with it, and what part I played, they had no problems with it. [They asked] if I write a book and sell it, they want part of the profits and to make sure we write their name properly. I wanted to go to the [neighbouring First Nation] and ask if they had those documents. My experience with them was that the bands sometimes do not share information when you want it, so instead I worked only on what was available here.

Information Management

Analysts found that variations in the format, structure, and style of each information source caused confusion and required them to constantly re-adjust their analytical approach. The improper organisation, archiving, and storage of information caused delays and disruptions. For example, some analysts found there was no system to identify, access, and retrieve local information. Others discovered that transcripts,
maps, cassette tapes, reports, and books were missing. Some primary materials were not transcribed, translated, edited, or verified, and some maps were not cross-referenced with interviews, rendering them useless.

[Secondary sources] were great. I really liked them. However, I got a little overwhelmed and I didn’t know where to start or how to approach them. I wanted to [analyse] everything.

The TUS interviews were quite incomplete. It really made it a hard job to do because it was difficult to locate them. It was all unorganised.... Just to find the information was difficult because it wasn’t all in one place and not one [specific] person looks after it.

They’re not recording the information so they can’t keep track of anything that’s [in the community].... I think [the First Nation] needs to keep their own database of information and activities so that they’re not constantly researching...especially when they already have the information. If you know you have something on file, it is going to save a lot of time, effort, and money. It may cost a few dollars in the beginning to start it up, but [after my experience] I think it’s worth the investment.

Data Analysis

During the summarisation stage, analysts had some difficulty comprehending, retaining, and applying the concepts of criteria, indicators, and actions for forest management. Analysts found that indicators were not prevalent in secondary information and, at times, analysts failed to distinguish between indicators and actions. Two analysts struggled with the familiarisation stage, when a sub-set of the data was indexed into initial categories or themes. They had difficulty understanding that themes arose from the data themselves, rather than their personal priorities and subjective interpretations.

Since all sources were collected/created for purposes other than the AFPP, they contained irrelevant information. Data reduction—selecting units of data from the total amount of information—was demanding. At times, analysts had problems focusing on the purpose of their analysis or included too much detail. They had difficulty sifting and sorting through data to distinguish and summarise key points. For instance, AIA’s contained extraneous information on study design and methodology, resource development, and biophysical site descriptions. Likewise,
community members' stories focused on interesting but inapplicable genealogical, historical, health, and social issues. In some cases, analysts included either too many criteria (e.g., they coded items that were not community values) or too few criteria (e.g., they grouped several distinct criteria).

The compilation stage also presented challenges. One analyst found compilation challenging because of the large number of codes s/he needed to work with. For others, compiling provided an opportunity to review and revise work. At this stage, analysts corrected both editorial and conceptual errors.

The only confusing part was that there was just so much information that I didn’t know what to put down. Every little rock and stick seemed important…. The [AlA’s] are done in a format that unless you really know what you’re looking for in it, it just throws you way off. You just want to throw it in a pile and say ‘Uugghh!’

[Initially], I tried to use the frameworks we developed in the training session and in the [AFPP] guidebooks. Everything got easier when I realized it was my job to develop criteria themes and sub-themes based on my community’s information.

I had a hard time at first. I think it was because after I’d done my first table [in the training session] I thought, ‘Oh this is going to be easy.’ I was all excited. But, when I actually got down to it on my own, I had a hard time deciding what was relevant. What is this a criterion or an indicator? Or even to come up with a category for it…. People said what they wanted and how to do it but usually not how to monitor it.

**Personal Problems**

Analysts identified several personal issues that complicated their AFPP applications. They confronted problems of boredom arising from repetitive tasks. Analysts initially lacked confidence in their ability to follow AFPP steps. Due to a lack of local capacity in resource management, analysts were in high demand and experienced numerous interruptions attending to requests unrelated to the AFPP. All analysts struggled with feelings of frustration and helplessness at different points during the project. They also experienced fatigue; the AFPP involved intense, critical work and, in combination with other personal and professional responsibilities, analysts became overwhelmed by their duties. 

I had a hard time to actually start because, even though we
had the training, I didn’t feel confident enough. Once I started, it was great. But that was the big challenge, making sure that I felt good enough or comfortable enough to actually begin that process. I felt like, ‘I’m going to analyse this? Oh my gosh!’

Every new step, I had a little blackout...I’d start out and I’d think, ‘No. This isn’t looking good.’ I would think, ‘There are no indicators here. I must be doing it wrong.’... I was too critical of [myself].

The challenge was trying to do it! I was always being interrupted.... It makes it so much easier when you don’t have those issues to worry about so you can concentrate on the information.

Capacity

Analysts felt that they lacked local professional support; because of the specialised nature of their work, colleagues and mentors could not offer assistance. This created a sense of isolation. All analysts believed working with a partner would improve their efficiency and effectiveness. Analysts wanted additional training in forest management concepts, terms, and approaches so that they could act as more effective translators between Aboriginal and western perspectives. One analyst lacked proficiency in word processing and Internet use, and required computer training. All analysts requested additional training in qualitative data analysis. They had little or no prior experience in the area, and found familiarisation, data distillation, and data classification phases challenging. Analysts reported practical capacity constraints related to lack of workspace, computer facilities, and privacy.

I could have used another community member to come to the training.... Most of my resources were here in the office but sometimes, if I had another set of hands, maybe it could have helped.... I could have used another worker.

I wanted feedback from people [in my office]. I went with [a colleague] before I realized that ‘[this individual] hasn’t got a clue what I’m talking about.’ Then I went over and discussed things with [my boss].... So, I started bouncing things off him and asking him questions. Quite frankly, he said, ‘I can’t help you.’ I thought, ‘My gosh! This [person] is a land use planner. I thought of all the people that you could help me.’

It would have been nice if I had [the other trainee] with me because s/he went though the training with me and would
have filled in the gaps.... Sometimes, I felt like I needed help. But then, I’d just take a break and calm down and re-think what I was doing. It would have been nice if someone was there.

I wanted to have [more knowledge of forestry] so that if a forester came in, he would know what I’m talking about automatically. I had a hard time with that because I’m not totally familiar with that terminology. I really wanted to be more up to par on all that stuff.

**Communication**

Analysts failed to interact with each other throughout the application period, losing potential networking and support benefits. Each analyst reported deficiencies in the array of communication skills they required to function effectively. Communication tasks that presented challenges included: writing memos, e-mails, and reports; making oral presentations at staff meetings, community working group meetings, and community events; contacting libraries, archives, and corporations; and carrying out daily/weekly reporting by phone.

All analysts believed that long distance communication with researchers impeded success; for instance, researcher support solving technical or data analysis problems over the phone and e-mail was valuable, but could not replace the benefits of direct interaction. Analysts indicated that the AFPP guidebook and the training package developed for the exercise were inadequate to address some challenges. Analysts wanted increased face-to-face assistance and feedback. Analysts did not anticipate the intense internal communication requirements of the AFPP. Communication costs were high. Despite the completion of a thorough awareness raising and preparatory phase in each community, analysts spent a significant proportion of their time explaining the project and accessing resources.

I think if I’d discussed with some of the other trainees, I might have been able to see how they approached the same type of documents [and problems]. Maybe they assessed them a little [differently].

I felt like [the AFPP required] a lot of communication. I needed to communicate with a lot of people about things all the time and that hindered things with me.

I found the only communication problems I had [were] with the administration.... It’s not like you talk to one guy and everything is Okay. You have to go to each individual and go
through the whole thing. They all have different questions. They all have different thoughts. Basically half don’t under­
stand what you are doing. The other half say, ‘Yeah sure. Take it. Give me a report back when you are done.’

Discussion

Lessons

The AFPP met many of the objectives of its designers, facilitators, and participants. Although several common problems were encountered, the AFPP experience can be considered a positive one for Skw’lax, T’exelc, and Tl’atz’en Nation based on findings from journals, interviews, focus groups, and participant observation. The pilot projects produced a number of general lessons that might prove useful for individuals and organizations—Aboriginal and non-Aboriginal—working on similar community-based planning initiatives.

The first lesson learned is that new planning tools such as the AFPP are urgently required to support an agenda of planning for a better future determined and carried forward by Aboriginal people. Current government planning and forest management policies do not adequately accommodate this approach (Michel & Gayton, 2002). Yet, giving First Nations the opportunity to participate in the management of their lands and resources is an essential first step in increasing their autonomy and prosperity (Wolfe, 1988) and in breaking a self-perpetuating system of dependency (Langin & Ensign, 1988).

The second lesson learned is that practical frameworks, such as the AFPP, are needed to link traditional environmental knowledge and western science in forest management. Scholars and First Nations emphasise the need to increase awareness and knowledge exchange between these two systems (Michel & Gayton, 2002). This is considered critical to the effective operation of a variety of shared decision-making arrangements (Roberts, 1994). Amalgamation is necessitated by the pluralism and interdependency of western and Indigenous societies, policy requirements, legal requirements, and a concern for human rights (Sherry, 2002). However, in the pursuit of integration, First Nations criticise the tendency of researchers and resource managers to frame local ideas in western terms, obscuring local people’s perspectives on social and environmental relations (Cruikshank, 1984). Results of the present study show that the AFPP and local-level C&I for forest management are approaches meaningful to all parties—BC First Nations and government/industry forest managers. The AFPP recognises First Nations have special knowledge concerning forest use and sustainability based on their traditional knowledge, practices, and beliefs as well as their relationship with the con-
temporary forest economy. The AFPP links this knowledge with science in resource management decisions. Such tools are needed to address Aboriginal issues, to develop mutually beneficial working arrangements among Aboriginal communities and the forest industry, and to improve forest practices (Smith, 1998).

The third lesson learned is that Aboriginal communities have a number of significant land and resource management information needs. The AFPP pilot projects experienced barriers related to identifying, accessing, and managing information. An information needs assessment is required in each community before implementing the AFPP (Michel et al., 2002). Explicit guidelines for collecting, organising, storing, and accessing traditional knowledge and land use information are also required (e.g., DCI, 1994; Yellowknives Dene First Nation, 1995; or Ryan & Robinson, 1996). These would represent minimum local standards that could direct and educate both community members and external agents, as well as balance ownership and control of information. For instance, in a study of shared resource management in the north Yukon, several features of effective information storage and access were elaborated, including a system that accepts qualitative and quantitative information, is accessible to experts and non-experts, is computer-based and accessible over the Internet, includes spatial information, makes use of interactive technologies and relational databases, provides information to track inputs into the system, indicates ownership, is regularly updated and monitored, and is managed by dedicated staff (Sherry, 2002).

The fourth lesson learned is that First Nations need to communicate more effectively internally and with other First Nations, re-establish trust and a collaborative spirit among community members, develop new communication methods, and consider factors such as literacy levels, educational background, communication styles, and language preferences in designing communication tools. These initiatives will strengthen community networks and will facilitate the identification of local issues, opportunities, and solutions. For instance, there are various types of communication media, each with different degrees of intimacy, rates of feedback, and levels of information richness (Beebe & Masterson, 2000). Assessing the strategies best suited to particular community groups will improve the exchange of ideas and ensure cost efficiencies (Beckley & Korber, 1997). Without effective internal and inter-group communication, the AFPP is unlikely to succeed. This includes establishing a strong communication link between the community and AFPP analysts. In our view, AFPP communication efforts should not merely aim to pass along information, but should promote critical understanding and adoption of the issues. The literature lends support to this view that the real purpose
of community-based planning is for local people to think, discuss, and act together (Borrini-Feyerabend, 1996; Borrini-Feyerabend et al., 2000).

The fifth lesson learned is the importance of a preparation and awareness phase at the outset of a community planning process. Despite preliminary work to promote and develop the AFPP—through meetings and workshops with community leaders and organisations—analysts struggled with achieving local co-ordination and co-operation. All involved parties did not understand project requirements, causing confusion and threatening the process. This was a serious shortcoming to our approach. A longer, more in-depth preparation and awareness phase would contribute to community orientation (Witty, 1994), engagement (Wolfe, 1988), and learning (Wolfe-Keddie, 1994).

It is unclear whether or not the AFPP will continue on in communities after UNBC involvement ends. The sixth lesson learned is that when working with a community, it is easy to become a project’s driving force. In the future, implementation of the AFPP must be accompanied by a formal community development initiative. External agents should act initially as leaders and later assume the role of facilitator to a point where they are no longer needed. Projects must become self-generating and the community’s responsibility. Long-term, consistent follow-through by external agents is required until community members say, “We can do the AFPP by ourselves.” However, recognising when it is time to withdraw does not mean that external agents should disappear. Maintaining an ongoing presence even after a project finishes is essential to preserve trust and relationships, and to assist effectively in future community-based planning efforts if needed. This should not imply that external agents are necessary to drive the AFPP. A Tribal Council, a Chief and Council, a local consultant, First Nation staff, or a band member, people who hold a vision for the community and know the AFPP well, could act as the local animator.

The seventh lesson learned is that ongoing investment in capacity building is essential. Pilot projects demonstrated that each First Nation is positioned differently in terms of its readiness to participate in community-based planning. Communities varied in the availability of skills, information, and technical resources to undertake the AFPP (Michel et al. 2002) also found that the infrastructure and resources needed to manage natural resources are not equally available among First Nations. According to our experience, the immediate focus should be on community building and people development – transferring new skills and knowledge through education, training, and on-the-job experience; increasing awareness of resources and alternatives; and empowering the community to act. First Nations face challenges in strengthening exist-
ing community institutions and in creating new ones where needed. Providing appropriate training in a variety of disciplines related to the AFPP could aid local people in taking the lead in areas such as TEK and forest research, public outreach and extension, community economic development, ecological restoration, or resource monitoring. Community building may require a dedicated AFPP co-ordinator to assist the community in securing information, networking, accessing funding sources, or undertaking organisational development. Investing time, money, and patience will be keys to realising the goal of enabling local people to direct community-based planning.

The eighth lesson is that non-governmental institutions can play a valuable role in helping communities determine and realize their planning goals and objectives. For example, the present research demonstrated that universities can contribute technical information to local decision-making and can act as catalysts, trying to mobilize resources available in the community and access new ones. Partnership brings resources such as funding, information, volunteers, or advocacy; constituencies through publicity or extension activities; and credibility through positive press or political lobbying (Murray, 1995). This is important since any community cannot hope to encompass the full complement of talents, skills, knowledge, and resources needed for the AFPP.

The ninth lesson learned is that an overly standardized model for community-based forest planning is unrealistic, and likely counter-productive. Each participating First Nation experienced challenges and opportunities that reflected its unique culture, history, and organisation. The AFPP succeeded because it was flexible to each community's evolving needs and perspectives. Furthermore, community-based planning is an emerging tool for resource management, and social relations, values, economic conditions, traditions, beliefs, knowledge, and the environment itself will transform over time. Processes must be reflective, iterative, and open to change (Barborak, 1995; Moores & Duinker, 1998).

The final lesson follows that systematic monitoring and evaluation of the AFPP will be important to its success. Community members need to participate in continual reshaping of the approach. Monitoring should track both process issues and outcomes, and evaluation should determine effectiveness by distinguishing problems, identifying lessons, and developing actions for change. Linking past experience and future initiatives will lend continuity (Warren, 1998) and provide the "proof of change [which is] vital to convince people their input was valued and that the process was worthwhile" (Higelke & Duinker, 1993:ii). AFPP monitoring and evaluation should result in learning. Communities need
to recognise their mistakes and transform them into new sources of knowledge. It will be important to disseminate the results of AFPP evaluation to a network of other First Nations and forest management organisations in order to advance collective understanding of the practice of Aboriginal forest planning.

Concerns

Despite its advantages, the AFPP remains a vulnerable process. Unless it is initiated to assist shared decision-making among committed partners, the entire process could fall victim to external pressures. Since the AFPP does not supersede current provincial government policy, legislation, or regulations, government and industry partners will have to implement AFPP results on a voluntary basis. This lack of “teeth” has been cited as a major cause of failure in other community-based planning initiatives (Kofinas, 1998; Chambers, 1999). Where the management setting is complex (e.g., there are many stakeholders and competing resource uses) and Aboriginal groups lack decision-making authority, the outcomes of the AFPP may have little influence on resource management. Consequently, the AFPP requires that the fundamental obstacles and asymmetries of power limiting interactions among First Nations, government, and industry in resource development in BC are addressed, and that First Nations continue their commitment to negotiation, partnership building, and effective external communication. To ensure success, government and industry resource managers must adopt a collaborative approach, and redefine their role as supporting and complementing, rather than replacing, Aboriginal knowledge and management systems (Sherry & Myers, 2002). In this model, communities also need to establish and maintain networks with outside management institutions in order to enhance understanding and support for local issues and management approaches, develop appreciation for First Nations’ contributions, prevent duplication of effort, and promote information sharing. Conflict arising from failure to include outside interests may frustrate the implementation of an AFPP initiative by diverting time, money, and human resources away from management activities.

The AFPP has other potential drawbacks. Like science, traditional knowledge systems are dynamic and evolving. Yet, they are not updated and disseminated through written sources that are easily referenced and added to a database, such as the one generated by the AFPP. Adequate funding and personnel are required to ensure ongoing maintenance and updating of AFPP information. The AFPP approach also has potential to remove traditional knowledge from its socio-cultural context, the oral tradition, and to some extent, from the people who are best able to pro-
vide interpretations of it (e.g., Elders and traditional land users). Thus, the possibility of appropriation and dispossession must be monitored. In addition, the identification of explicit, testable forest management indicators can be difficult or impossible in some situations, particularly if information sources and community participation are limited. Participation barriers such as community apathy, mistrust, and dependency must be addressed.

Conclusion and Recommendations

Government, industry, and the public generally acknowledge the need to meaningfully and equitably involve Aboriginal people in resource decision and policy-making (RCAP, 1996). Their involvement in the management process is being recognised as both an unrelinquished right and a necessary element in achieving sustainability (Natcher & Hickey, 2002). This reorientation is occurring in British Columbia where fundamental questions of title to land and ownership of resources are being resolved through the courts and treaty making. Innovative approaches such as the AFPP provide useful and effective tools to assist Aboriginal communities in constructively participating in forest management and development decisions as authority shifts from macro to local levels of responsibility. However, using these tools requires people, resources, and support, which is all too frequently lacking in Aboriginal communities. Our research demonstrated that pilot project communities are capable of using AFPP tools, but that significant obstacles exist to effectively and independently implementing them. Without necessary investments in the human capital and management infrastructures of these communities, the promise of approaches such as the AFPP is unlikely to be fulfilled or sustained.

Additional research to test the community consultation and collaborator involvement phases of the AFPP is needed. This will likely reveal an additional set of benefits, challenges, and adaptations. The following recommendations for modifying the AFPP to address the limitations identified in this paper may assist future AFPP applications and provide general guidance to other community-based planning initiatives.

1. Clearly articulating the AFPP to community leaders and members is essential; they must understand the process, the final outcomes, their various roles, and the constraints under which they operate. This might alleviate the uncertainty and delays experienced by analysts. For instance, analysts can seek informed consent from community members whose interviews, maps, or stories they want to use to reduce information access concerns.

2. Provide AFPP training to a number of community members. Con-
continuity in analysts (i.e., the level of turnover and attrition that is experienced) is extremely important to the sustainability and effective functioning of the AFPP. Focus on training that supplies opportunities for interaction, sharing, direct experience, and transformational learning. Ensure adequate time is spent on clarifying criteria and indicator concepts and practicing their application.

3. Hire at least two analysts per AFPP project. A second analyst can provide guidance, reassurance, and encouragement; assist in the identification and evaluation of information sources; critically review results; and fulfil administration and communication requirements.

4. Take a systematic approach to the identification and collection of information sources. For example, inventory what information is available in the community; explore the relevance and accessibility of information from other local and regional sources; and prioritise information sources in partnership with the Community Advisory Group and, possibly, Collaborators.

5. Take a systematic approach to the analysis of information sources. For instance, develop guidelines to evaluate the quality of primary and secondary materials; conduct content analysis according to an incremental five-step process of familiarisation, analysis, critical review, reflection, and revision; and, institute a community verification process.

6. Develop an internal AFPP project communication plan. Describe project successes and challenges on an ongoing basis to increase local awareness and to provide a sense of local ownership.

7. Establish external communication and capacity building links with local educational and resource management institutions. Recruiting support from key outsiders such as universities, environmental groups, and industry can facilitate AFPP implementation and the application of results to resource decision-making.

8. Implement an ongoing evaluation framework to review and assess the AFPP, improving the process and desired outcomes in response to changing circumstances and local needs.
Notes

1. The Canadian Council of Forest Ministers (CCFM) define a criterion as “a category of conditions or processes by which sustainable forest management may be assessed...characterised by a set of related indicators, which are monitored periodically to assess change” and an indicator as “a quantitative or qualitative variable which can be measured and described and which, when observed periodically, demonstrates trends” (CCFM, 1995: 5).

2. For the purpose of the present study, primary materials are the basic, original information or raw data collected by others at a time contemporary or near contemporary with the period being investigated (e.g., interview tapes or transcripts, map biographies, plant inventory data, etc). Secondary materials are published summaries of primary material (e.g., reports, books, journals, newspapers, magazines, video, maps, etc). Secondary materials are developed at some time removed from actual events and interpret or analyse primary materials. Secondary information is defined as information collected by others and archived in some form; it refers to both the raw data obtained in various studies and the published summaries of these data.

3. Affiliated with the Cariboo Tribal Council, WLIF is in stage four (Agreement-in-Principle) of the BC Treaty Commission process.

4. Tl'azt'enne Treaty interests are represented by the Carrier Sekani Tribal Council and negotiations have reached stage four (Agreement-in-Principle).

5. Management strategies reviewed include harvesting plans, silviculture plans, road building and deactivation, herbicide plans, and pesticide plans.


Acknowledgements

Forest Renewal British Columbia and the BC Forestry Innovation Investment - Forest Research Program provided financial support for this research. We are extremely grateful to Skw'lxal, T'exelc, and Tl'azt'en Nation for working with UNBC in a spirit of trust and collaboration. Special thanks are extended to Charlotte Francois, Dwayne Martin, and Andrea Thomas who were instrumental in the pilot projects' successes. Andreas Artz, Dianne Francois, and Tess Tomma (Skw'lxal); Kristy Palmantier, Jason Gordon, Chris Wycotte, and Renee Kane (T'exelc);
Susan Grainger, Dexter Hodder, and Ron Winser (John Prince Research Forest); and Beverly Bird, Shannon Menelaws, and Terry Furlong (Ti'azt'en Nation) provided valuable guidance, liaison, and co-ordination services. Map production by David Stuart, Tesera Systems Inc. is also appreciated. The authors wish to thank Dr. Gail Fondahl, Chair of Geography/Resource Recreation and Tourism at UNBC and Susan Grainger (RPF), Manager of the John Prince Research Forest for their constructive feedback on an earlier draft of this article.

References


Borrini-Feyerabend, G. 1996 *Collaborative Management of Protected Natural Areas: Tailoring the Approach to the Context*. Gland, Switzerland: IUCN.
Borrini-Feyerabend, G., Taghi Farvar, M., Nguinguiri, J. C., & Ndangang, V. A.

Bryman, A., & Burgess R.

Canadian Council of Forest Ministers (CCFM)
1995 Defining Sustainable Forest Management – a Canadian Approach to Criteria and Indicators. Ottawa, Canada: Natural Resources Canada.

Canadian Council of Forest Ministers (CCFM)

Chambers, F. G.

Cruikshank, J.

DeMello, S., Boothroyd, P., Matthew, N., & Sparrow, K.

Dene Cultural Institute (DCI)
1994 Guidelines for the Conduct of Participatory Community Research. In B. Sadler & P. Boothroyd (Eds.), Traditional Ecological Knowledge and Modern Environmental Assessment (pp. 69-75). Vancouver, Canada: University of British Columbia Press.

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Higgelke, P. E., & Duinker, P. N.

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