

The Role of Collaborative Planning in Environmental Management: An Evaluation of Land and Resource Management Planning in British Columbia

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ABSTRACT *Recent literature on land-use planning proposes the use of innovative collaborative planning (CP) models to resolve planning disputes. This paper uses a participant survey based on 25 evaluative criteria to evaluate an application of CP to land-use planning in British Columbia, Canada. The results show that CP is an effective means of resolving environmental conflict and produces significant additional benefits such as improved stakeholder relations, skills, and knowledge. The case study evaluation also identifies the keys to successful CP management including factors related to process design and external circumstances.*

Introduction

One of the primary challenges to sustainable management is resolving disputes among competing stakeholders over the use of scarce natural resources. In recent years, there has been growing interest in more collaborative processes to resolve disputes and prepare plans. These innovative approaches, which will be referred to as collaborative planning (CP), are founded on the principles of interest-based negotiation and consensus building, which attempt to collaboratively seek outcomes that meet the interests of all stakeholders.

Unfortunately, while CP type processes are widely advocated, they are rarely evaluated to assess strengths and weaknesses. The purpose of this paper is to help address this research need by comprehensively evaluating one of the most extensive applications of CP to date: the preparation of regional land-use plans for the province of British Columbia, Canada. British Columbia (BC) is the only jurisdiction in which CP has been implemented systematically to develop land and resource management plans for almost the entire land base of the

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province. Therefore, the BC experience provides a unique opportunity for evaluation.

The paper begins with a review of the theory of CP. This is followed by an evaluation of CP in the case study region. Strengths and weaknesses are assessed and characteristics of a successful CP process are identified.

Collaborative Planning

The principal feature of CP is that it uses a higher level of collaboration and involvement of stakeholders than other planning approaches (Duffy *et al.*, 1996; Carr *et al.*, 1998; Susskind *et al.*, 2000; Wondolleck & Yaffee 2000; Gunton & Day, 2003). In CP, authority to develop plans is delegated to stakeholders who work together in face-to-face negotiations to reach a consensus agreement. Usually CP uses a facilitator, seeks consensus, ensures that all participants are heard and respected, and ensures that discussions are based on interests, not predetermined positions.

The primary benefit of CP is that it is more likely to resolve conflict among competing stakeholders than other planning processes because it identifies solutions that meet mutual interests of all parties (Bacow & Wheeler, 1984; Susskind & Cruikshank 1987; Fisher *et al.*, 1991; Gunton & Flynn, 1992; Harter, 1997; Innes & Booher, 1999; Wondolleck & Yaffee, 2000; Gunton & Day, 2003). The quality of agreements produced is higher because they incorporate a broad array of unique experience and knowledge, and they are the outcome of a dynamic interchange that it is more likely to produce innovative ideas (Susskind & Cruikshank, 1987; Innes & Booher, 1999; Gunton & Day, 2003). By including all stakeholders, CP is more likely to produce a just outcome that benefits the community at large (Innes, 1996; Innes & Booher, 1999; Gunton & Day, 2003). Even when full agreement cannot be reached, CP can better inform the decision-making process by defining problems, narrowing the scope of issues, providing better information, and identifying and analyzing possible solutions (Cormick *et al.*, 1996; Owen 1998; Susskind *et al.*, 2000, Gunton & Day, 2003).

Agreements produced from CP processes are also easier to implement and more durable because, by taking a wide spectrum of interests into account, they are less likely to generate opposition (Susskind & Cruikshank, 1987; Moote *et al.*, 1997; Innes & Booher, 1999; Wondolleck & Yaffee, 2000; Gunton & Day, 2003). In addition, participants are more sensitive to implementation concerns in the planning phase because of their knowledge of the agreement and are more committed to the results because they were part of the process that produced the agreement (Bacow & Wheeler, 1984; Innes & Booher, 1999; Susskind & Cruikshank, 1987; Burby, 2003; Gunton & Day, 2003).

While agreements are often viewed as the primary objective of CP, there are other important benefits (Innes, 1998; Innes & Booher, 1999; Carr *et al.*, 1998; Owen, 1998; Wondolleck & Yaffee, 2000; Gunton & Day, 2003). Participants in a CP process can develop shared intellectual capital including agreement on data or analysis, definitions of a problem or objective, and mutual understanding of each other's interests. CP generates social capital in new or stronger relationships by increasing understanding, trust, and co-operation among stakeholders that reduce future conflict. Spin-off partnerships, networks, and collaborative projects may result that help to co-ordinate action. The result is shared political

capital as groups work together to influence public policy and decision making in ways they could not achieve individually.

While CP has many advantages relative to other approaches, there are limitations (Gray, 1985; Amy, 1987; Gunton & Flynn 1992; Cormick *et al.*, 1996; Moote & McClaran, 1997; Carr *et al.*, 1998; Susskind *et al.*, 2000; Wondolleck & Yaffee, 2000; Gunton & Day, 2003). Common obstacles inhibiting the effectiveness of CP processes include:

- fundamental ideological or value differences between stakeholders
- institutional culture resistant to change
- lack of flexibility in agency procedures
- legitimate convenor cannot be found
- lack of trust among stakeholders
- significant power imbalances among stakeholders
- negotiation skill imbalances among participants
- affected interests choose not to participate or are not organized to participate
- stakeholders are poorly organized or cannot clearly define their interests
- significant time and financial resources are required, restricting access
- participant burnout
- transfer of personnel, reducing continuity
- key stakeholders not motivated to reach agreement because of high BATNAs (best alternative to a negotiated agreement)
- weak accountability of stakeholders to their constituents and to the public.

There are several key themes in this list of obstacles. First, there is the issue of imbalances in power that allow more powerful stakeholders to achieve their objectives without engaging in a CP process with less powerful stakeholders. High BATNAs of powerful stakeholders reduce their incentive to negotiate. This is reinforced by the reluctance of resource managers to give up their decision-making power by empowering other stakeholders through a collaborative planning process. Even when stakeholders are motivated to negotiate, the asymmetrical distribution of negotiating skills and resources often allows more powerful stakeholders to dominate a process (Amy 1987; Weidner, 1998).

Q1

A second key theme in these obstacles is the accountability of CP processes to the public interest (Weidner, 1998; Wondolleck & Yaffee, 2000). CP can result in government agencies abdicating their legal obligations and authorities to non-elected CP groups, and the general public and unorganized interests being excluded from the process (Weidner, 1998; Wondolleck & Yaffee, 2000). As Bacow & Wheeler (1984) caution, there is danger in encouraging stakeholders to negotiate resolutions as they may strike agreements that meet their own interests but not society's interests.

Advocates of CP acknowledge these concerns and emphasize that such processes must be well designed to mitigate these potential problems. For example, power imbalances can be reduced by providing participant funding, negotiation training and independent facilitation. In addition, all CP processes must be accountable to the same standards applicable to any public decision-making process, which could include administrative, judicial or legislative processes and public review (Susskind & Cruikshank, 1987; Innes, 1999).

Q2

In sum, CP has both advantages and limitations. Consequently, it is important to evaluate the performance of CP processes to identify strengths and

weaknesses and the keys to successful implementation. This is done below in a case study analysis of land-use planning in British Columbia.

Case Study: Land-use Planning in British Columbia

The case study region of British Columbia has a population of 4.1 million and an area of 95 million hectares, making in larger in area than California, Oregon and Washington States combined. The British Columbia government owns and manages 94% of the provincial land base (Gunton & Fletcher, 1992). Approximately 85% of the land base is classified as provincial forest, which is used for multiple uses, with an emphasis on forestry. Private property rights to extract resources from public land are conveyed by a range of long- and short-term leases. The land base supports a large extractive resource industry comprised primarily of forestry, mining and oil and gas, which supports a large number of resource-based communities and accounts for almost one-third of the provinces economy, when multiplier affects are included (BC BC Stats, 2002a). The remaining public land is comprised primarily of parks and ecological reserves, which help support a large tourism sector that directly comprises 4.8 % of the provincial economy (BC BC Stats, 2002b) directly and approximately 10% when indirect and induced impacts are included. **Q3**

In the 1980s, the conflict between resource extraction and preservation intensified into what became known as the 'war in the woods', characterized by blockades and protests over harvesting of pristine old growth areas (Williams *et al.*, 1998; BC CORE, 1995). Land-use planning during this period was managed by the Ministry of Forests with limited public consultation. (Gunton, 1991; BC CORE, 1995). In response to the conflict, the province experimented with alternative planning processes such as advisory committees, task forces and increased public consultation to try to resolve land use and environmental conflicts. Although these approaches were unsuccessful in resolving the conflicts, they did emphasize the need for a new approach to land-use planning (Williams *et al.*, 1998; BC CORE, 1995; Cashore *et al.*, 2001). **Q4**

After decades of conflict and experiments with a wide range of alternative planning models, the province of British Columbia formally adopted a new, innovative collaborative model for land and resource planning in 1992 when the Commission on Resources and the Environment (CORE) was created (BC CORE, 1994). The new CP process was defined by the province as meaning "that on a certain set of issues, for a defined period of time, those with the authority to make a decision and those who will be affected by the decision are empowered to jointly seek an outcome that accommodates rather than compromises the interests of all concerned" (BC CORE, 1992, p. 25). **Q5**

CORE's mandate was to develop and implement this new CP approach to land-use planning and to prepare strategic land-use plans for the four regions of the province experiencing the greatest environmental conflict. Concurrent with the CORE's activities was the implementation of a similar CP process to prepare Land and Resource Management Plans (LRMPs) for the remaining regions of the province based on the same guidelines adopted by CORE. CORE was abolished in 1996 and the management of the CP land-use planning process was taken over by an interagency secretariat, the Land Use Co-ordinating Office (LUCO). The province also set a goal of doubling the protected areas from 6% to 12% of

Table 1. General principles of the Land and Resource Management Planning process

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- LRMP is guided by provincial policies and approved regional plans. The LRMP process is used to implement these plan and policies at the subregional level.
 - Land and Resource Management Plans provide direction for more detailed resource planning by government agencies and the private sector, and provide a context for local government planning.
 - All resource values are considered in the LRMP process to ensure that land use and resource management decisions are based on a comprehensive assessment of resource values.
 - Public participation is required in each LRMP. The public, aboriginal groups and government agencies negotiate an agreement on the objectives and methods of public participation at the outset of each LRMP project.
 - Aboriginal people are encouraged to actively and directly participate in LRMPs to ensure that decisions are sensitive to their interests. The LRMP process is consistent with the recognition of aboriginal title and the inherent right of aboriginal people to self-government. LRMP process occurs without prejudice to treaty negotiations.
 - LRMP is based on resource sustainability and integrated resource management. Land use and resource management recommendations must be within the environmental capacity of the land to sustain use.
 - The objective is consensus on decisions and recommendations in LRMPs. A definition of consensus is one of the first decisions required in an LRMP process.
 - LRMP projects are prepared within the constraints of available information, funding and participants time.
 - The goal of the LRMP process is to present to Cabinet ministers, designated by the Cabinet Committee on Sustainable Development, a recommended consensus agreement including a description of any scenarios considered. If consensus agreement is not possible, decision makers must be presented with options for land and resource management.
 - Land and Resource Management Plans will be prepared for all Crown lands. The target is to complete the first pass of LRMPs for British Columbia by 2002.
 - Land and Resource Management Plans will be reviewed and revised regularly when major issues arise.
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Source: BC IRPC, 1993a, p. 3.

the provincial land base and changing forest practices to protect better non-forestry uses.

Although the approach evolved over the decade from 1992 to the present, the basic features as outlined in several key policy documents remain consistent. The CP process is guided by the set of principles summarized in Table 1. The first step after deciding to commence an LRMP for a region was to create a stakeholder table that represented the diverse interests involved. Stakeholder tables ranged from less than 15 to more than 70 participants and included government, resource, environmental and community interests. The table was given responsibility for designing and managing the planning process and developing a strategic land use plan to recommend to government for approval.

An independent chair was appointed to manage each LRMP process with the support of professional staff from government agencies who helped manage logistics, provide information and undertake technical analysis. Facilitators were hired to assist in conflict resolution and training workshops on relevant topics such as negotiation skills and land-use analysis to prepare stakeholders for the process. Subcommittees of the tables were formed to analyze specific issues in detail and make recommendations back to the full stakeholder table. The general public was involved through outreach programmes such as open houses and

newsletters to ensure broad public input in the development of land use plans. The process was open to the public.

The first task assigned to stakeholders was to prepare terms of reference, which outlined objectives and procedures for the process. While these terms of reference had to be consistent with general principles and schedules determined by government, there was considerable leeway in specific procedures. Most tables adopted a conventional analytical process of establishing objectives, developing options, evaluating options and agreeing on a recommendation to submit to government for approval.

The next task undertaken by stakeholders was to develop goals and objectives and identify issues. This was followed by the analysis of resource data, which consisted of a folio of biophysical maps summarizing key land use features such as wildlife habitat by species, forest cover, soils, recreational features and slopes. This information was used to generate suitability maps for alternative land uses, which were then used by the stakeholder tables to formulate land use options. A special land analysis process to identify potential areas for protection was prepared by technical teams and provided to the individual land-use planning tables. These analyses were based characteristics such as ecological uniqueness and ecological representation.

The stakeholder table then generated land use options. The main task was to allocate land to one of four land use zones: protected areas, special management zones (where resource extraction is constrained by special regulations to protect unique environmental values), general resource extraction, and enhanced resource extraction. After the stakeholder table generated the land-use options, the options were evaluated by a multiple accounts analysis that rated each option against a series of criteria relating to economic, social, and environmental effects. A final recommendation determined on the basis of a consensus reached through interest-based negotiation was then submitted to the provincial government for final legislative approval.

As of October 2002, 15 LRMPs and four CORE land-use plans were completed and approved by the provincial Cabinet covering 73% of the provincial land base. With the completion of the six LRMPs currently in preparation, new land-use plans will have been prepared for 85% of the BC land base (Figure 1).

The plans took an average of four years to complete (Table 2). Although the plans include many recommendations on resource management, the principal recommendation is to allocate land to one of the four land use zones. The plans resulted in a significant change in provincial land use, with protected areas increasing from 5.6% to 12.5%, special management zones increasing from 0% to 16.4%, and general and intensive resource extraction decreasing from 91.6% to 67.6% (Table 3). This enhanced protection, combined with other new environmental regulations, is forecast to reduce the annual timber harvest in BC by approximately 17% (Price Waterhouse, 1995).

Evaluating Collaborative Planning Processes

The research methodology used for evaluating CP consists of the following steps. First, the literature on CP and programme evaluation was reviewed. Based on this review, a framework was developed for evaluating the BC case study based on an integration of several frameworks proposed in the literature (Gray,

Table 2. Summary of LRMP Land Use Planning processes evaluated in the case study

Land Use Planning Process	Area (ha)	Date initiated	Date completed	Date approved (in principle)	final approval	Level of agreement
Bulkley	762 000	January 1992	June 1996	(June 1997)	April 1998	Consensus
Cassiar-Iskut-Stikine	5 200 000	February 1997	May 2000	October 2000		Consensus
Dawson Creek	2 900 000	June 1992	June 1998	March 1999		Consensus
Fort Nelson	9 800 000	February 1993	June 1996	October 1997		Consensus
Fort St. James	3 174 000	October 1992	Spring 1998	March 1999		Consensus
Fort St. John	4 600 000	January 1993	June 1996	October 1997		Consensus
Kalum South	2 100 000	1991	February 2001	April 2001		Consensus
Kamloops	2 200 000	October 1989	February 1995	June 1995		Consensus minus one
Kispiox	1 200 000	September 1989	May 1994	(May 1995)	April 1996	Consensus
Lakes District	1 580 000	April 1994	November 1997	(August 1999)	May 2000	Consensus
MacKenzie	6 400 000	August 1996	July 2000	November 2000		Consensus minus one
Okanagan-Shuswap	2 500 000	July 1995	September 2000	January 2001		Consensus
Prince George	3 400 000	December 1992	June 1998	January 1999		Consensus
Robson Valley	1 300 000	March 1993	May 1997	April 1999		Partial Consensus
Vanderhoof	1 380 000	October 1993	May 1996	January 1997		Consensus
Central Coast	4 800 000	July 1996	Phase 1	phase 2 in progress		ongoing
Lillooet	1 100 000	June 1996	Options	March 2001		ongoing

Source: BC LUCO, 2002b.

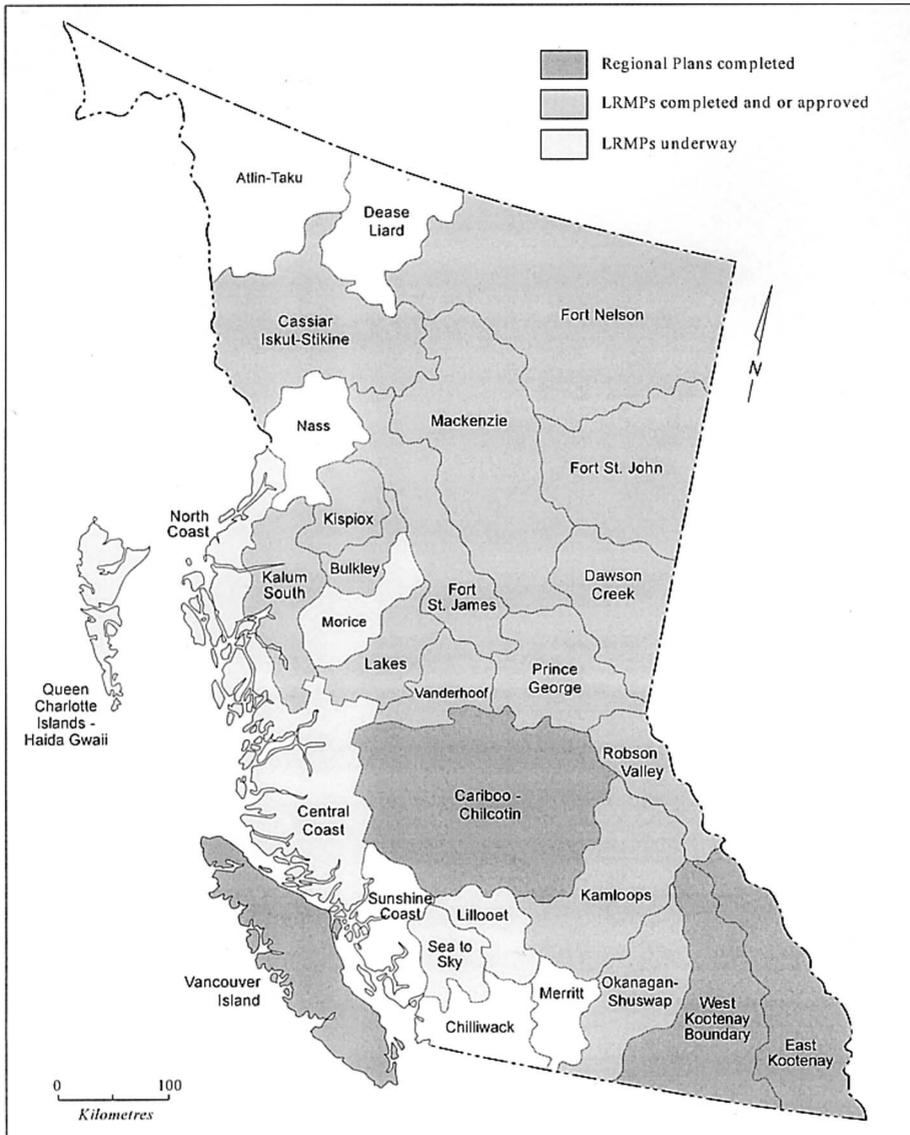


Figure 1. Status of strategic land-use planning in British Columbia as of October 2002. *Source:* BC LUCO, 2002a

1985; Susskind & McMahon, 1985; Campbell & Floyd, 1996; Duffy *et al.*, 1996; Cormick *et al.*, 1996; Harter, 1997; Menkel-Meadow, 1997; Moote *et al.*, 1997; Williams *et al.*, 1998; Innes & Booher, 1999). The framework consists of 14 process criteria, which define desirable features of process design and 11 outcome criteria, which define desirable outcome objectives (Table 4). The third step was to evaluate the degree to which the case study met the 14 process and 11 outcome criteria. The third step was based on a comprehensive survey of participants in the CP process and a review of all relevant planning documents.

Multiple questions were developed to test for each criterion. There were 24 questions developed to test for the 11 outcome criteria and 46 questions to test

Table 3. Changes in land use resulting from CORE and LRMP plans

Land use zone	1991 (%)	2001 (%)
Protected areas	5.6	12.5
Special management zones (enhanced protection)	0.0	16.4
Intensive resource extraction	0.0	15.9
General resource zones	91.6	67.6

Source: Pierce Lefebvre Consulting, 2001, p. 9.

for the 14 process criteria. The questions were designed as statements requesting responses on a four-point scale of agreement or disagreement (strongly agree, somewhat agree, somewhat disagree, strongly disagree) or not applicable. For ease of interpretation, percentages were then calculated based on the frequency of a particular response, divided by the total number of responses. Averages of the responses were then calculated for all the questions under each criterion to provide an overall response by criterion. Responses marked not applicable were excluded from the total. Where a question was phrased negatively, scores were inverted to ensure comparability of the result with positively worded questions. Responses by criterion are provided in Figures 2 and 3. Open-ended questions were also used to assess participant perceptions. A coding system was developed to summarize participants' responses to open-ended questions, and to calculate the frequency with which a particular response was made. Once coding was complete, the responses were grouped into themes to aid presentation and interpretation of the results. The questionnaire used in the survey is provided in the Appendix.

The 17 LRMPs listed in Table 2, which cover 54% of the provincial land base, were chosen for review. The remaining LRMP processes underway were excluded because they are still in their preliminary stage of development. The participant survey was mailed, or e-mailed, to 767 of 894 possible participants from the 17 targeted LRMPs. The remaining could not be located. The survey

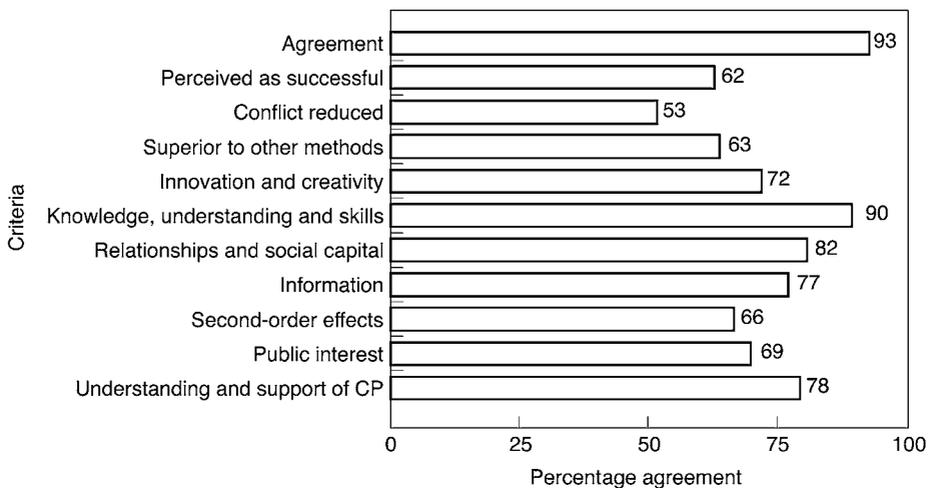


Figure 2. Outcomes of evaluation

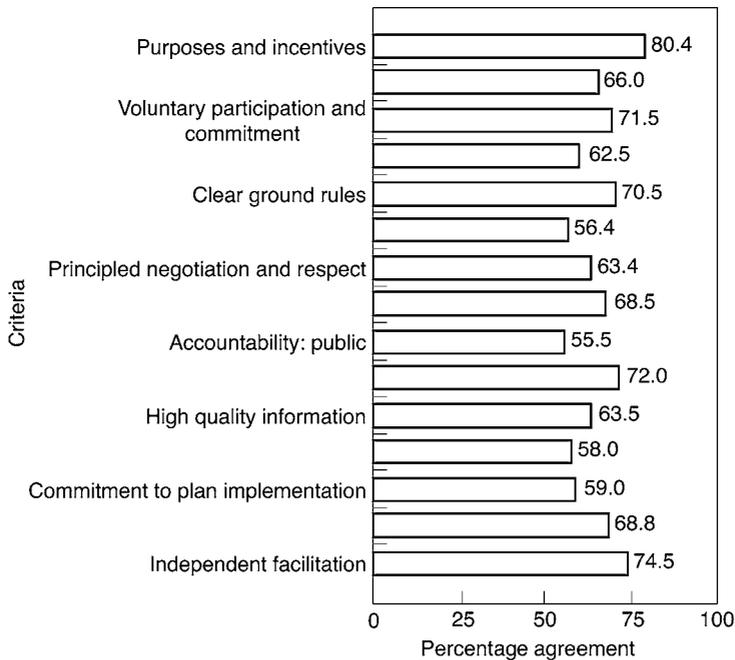


Figure 3. Process evaluation

was declined by 23 recipients due to a lack of involvement in the LRMP process. Two hundred sixty responses were received and form the basis of this analysis (response rate 35%). The confidence interval for the results of this study is $\pm 2.98\%$, 95% of the time. Of those who responded, 71% were involved for 75% or more of the process, and 54% for 90% or more of the process.

Outcomes Evaluation

Agreement. The first outcome criterion for evaluating the process is whether the process reached agreement. Based on this criterion, the LRMP process was remarkably successful. The stakeholder table reached agreements in 14 of the 15 of the completed LRMPs. Full consensus was achieved in 12 of the 15 completed LRMPs, consensus minus one (97.5% stakeholder agreement) was achieved in two, and in one process consensus was reached on the majority of plan elements and options were provided to government on non-consensus items.

Perceived as successful. Four questions were used to test whether the participants perceived the agreement as successful: was the process a positive experience, was the process a success, did it meet the needs of the individual stakeholder and was the stakeholder satisfied with the outcome. The overall rating for this criterion was 62 % agreement (Figure 2). There was a slight variation in the responses to the four questions. Almost two-thirds of participants agreed that the process was a success (64%) and that the process was a positive experience (68%). Participants were less positive when asked if they

Table 4. Evaluative framework: process and outcome criteria for evaluating collaborative planning case studies

Process criteria and descriptions
<ol style="list-style-type: none"> 1. <i>Purpose and Incentives</i>: The process is driven by a shared purpose and provides incentives to participate and to work towards consensus in the process. 2. <i>Inclusive Representation</i>: All parties with a significant interest in the issues and outcome are involved throughout the process. 3. <i>Voluntary Participation and Commitment</i>: Parties who are affected or interested participate voluntarily and are committed to the process. 4. <i>Self-design</i>: The parties involved work together to design the process to suit the individual needs of that process and its participants. 5. <i>Clear Ground Rules</i>: As the process is initiated, a comprehensive procedural framework is established including clear terms of reference and operating procedures. 6. <i>Equal Opportunity and Resources</i>: The process provides for equal and balanced opportunity for effective participation of all parties. 7. <i>Principled Negotiation and Respect</i>: The process operates according to the conditions of principled negotiation including mutual respect, trust, and understanding. 8. <i>Accountability</i>: The process and its participants are accountable to the broader public, to their constituents, and to the process itself. 9. <i>Flexible, Adaptive, and Creative</i>: Flexibility is designed into the process to allow for adaptation and creativity in problem solving. 10. <i>High-Quality Information</i>: The process incorporates high-quality information into decision making. 11. <i>Time Limits</i>: Realistic milestones and deadlines are established and managed throughout the process. 12. <i>Commitment to Implementation and Monitoring</i>: The process and final agreement include clear commitments to implementation and monitoring. 13. <i>Effective Process Management</i>: The process is co-ordinated and managed effectively and in a neutral manner. 14. <i>Independent Facilitation</i>: The process uses an independent trained facilitator throughout the process.
<p>Outcome criteria and descriptions:</p> <ol style="list-style-type: none"> 1. <i>Agreement</i>: Process reaches an agreement accepted by parties. 2. <i>Perceived as Successful</i>: The process and outcome are perceived as successful by stakeholders 3. <i>Conflict Reduced</i>: The process reduces conflict. 4. <i>Superior to Other Methods</i>: The process is perceived as superior to alternative approaches 5. <i>Innovation and Creativity</i>: The process produced creative and innovative ideas and outcomes. 6. <i>Knowledge, Understanding and Skills</i>: Stakeholders gained knowledge, understanding, and skills by participating in the process. 7. <i>Relationships and Social Capital</i>: The process created new personal and working relationships, and social capital among participants. 8. <i>Information</i>: The process produced improved data, information, and analyses through joint fact-finding that stakeholders understand and accept as accurate. 9. <i>Second-order Effects</i>: The process had second-order effects including changes in behaviours and actions, spin-off partnerships, umbrella groups, collaborative activities, new practices or new institutions. Participants work together on issues or projects outside of the process. 10. <i>Public Interest</i>: The outcomes are regarded as just and serve the common good or public interest, not just those of participants in the process. 11. <i>Understanding and Support of CP</i>: The process resulted in increased understanding of, and participants support the future use of CP approaches.

were satisfied with the outcome of the process (56%) and whether it addressed their interests (59%). Given that complete or nearly complete consensus agreements were reached in all of the completed processes, the responses on support

for the outcome and the process are lower than expected. This may be a reflection of slow progress in implementation, deferment of agreement on some controversial issues or uncertainty over changing government policy and priorities. Alternatively, this could perhaps be an inevitable outcome of consensus negotiation, where all parties are required to compromise to reach an agreement. No one group can meet all its objectives. However, the fact that almost a half of participants were not satisfied with the outcome even though 14 of the 15 LRMPs were agreed to by consensus of consensus minus one shows that consensus should not be interpreted as stakeholder satisfaction.

Conflict reduced. Participants were almost equally divided when asked whether conflict over land use in the area decreased as a result of the LRMP process. This low agreement on conflict reduction is surprising, given that consensus or consensus minus one agreement was reached in almost all cases. Having a significant proportion of participants feeling that conflict had not been reduced (47%) could be a reflection of the fact that many difficult issues were left to be addressed during implementation or under subsequent operational planning on a smaller scale.

Superior to other methods. Assessing the superiority of a CP process relative to other processes is difficult because there is no 'control group' of alternative processes that can be compared to CP while controlling for other factors. Nonetheless, the ability of the LRMP processes to reach agreements on land-use plans when other processes had previously failed displays the relative superiority of CP, subject to the caveat of confounding factors. Stakeholders' perceptions on the relative merits of CP were also tested by two survey questions: was the process the best way of developing a land-use plan and were stakeholder interests accommodated better through the LRMP process than through other means. The overall agreement with these questions was 63% (Figure 2), suggesting modest support for CP relative to other methods. The support, however, may be understated because the stakeholders did not have direct comparable experience with other methods to inform their response and the previous failure of other methods indicates that there may not have been a feasible alternative to CP.

Creative and innovative. The LRMP processes provide an opportunity to test, and to learn from new ideas and approaches to decision making and land and resource management. A strong majority of participants (72%) agreed that the LRMP planning process produced creative ideas for action.

Knowledge, understanding and skills. Four questions tested the ability of the process to improve knowledge, understanding, and skills of stakeholders. The average agreement of these questions was very high (90%) and there was no significant differences in the responses to the four questions used.

Relationships and social capital. There was 82% overall agreement that the LRMP process improved relationships among participants in the process and created

new relationships among stakeholders. Three questions were used to test this criterion and there were no significant differences in the responses.

Information. There was an overall 77% agreement that information acquired by stakeholders during the LRMP process had benefits for stakeholders' organizations and was used for other purposes outside the process.

Second-order effects. Two-thirds of respondents agreed that the LRMP process had second-order effects including changes in behaviours and actions, spin-off partnerships, umbrella groups, collaborative activities, new practices or new institutions. There was a significant difference in the two questions used to assess this criterion: 71% agreed that they had seen changes in behaviour as a result of the process and 50% agreed that partnerships or collaborative processes arose as a result of the process.

Public interest. Agreement that the outcome of the process served the public interest was 69%. The agreement that the process served the public interest is higher than agreement that it met the needs of the individual stakeholder groups (59%). This supports the argument that the low agreement that the process met the interests of the stakeholder groups is due in part to the inevitable compromises that must be made in negotiations. Stakeholders are aware that the public interest is not the same as their stakeholder interest. Therefore, stakeholders' agreement that the process met their own interest understates stakeholder support for the agreement.

Understanding and support for CP approaches. This criterion tests the ability of the process to cultivate support for CP processes. The LRMP process score relatively high on this criterion with 78% agreement. Three-quarters of respondents agreed that based on their experience in an LRMP, they would get involved in a similar process again. The agreement with the consensus requirement, however, was a lower 68%.

Process Evaluation

Purpose and incentives. The survey shows that 80% of participants agreed that they had strong incentives to negotiate and to reach an agreement (Figure 3). Participants were highly motivated, with 88% agreeing that they became involved in the process because they thought it was the best way to meet their objectives and 96% agreeing that they were fully committed to making the process work. Clearly, participants had low BATNAs (best alternative to a negotiated agreement), which increased their willingness to negotiate. Low BATNAs likely existed for two reasons. First, 86% of stakeholders knew that if they did not reach an agreement, the provincial government would make a unilateral decision on land and resource use. Stakeholders, it appears preferred to retain control of the decision-making process. Second, the forest industry was motivated to negotiate solutions to land use conflicts to ward off environmentally motivated international boycotts of BC forest products and increased anti-logging blockades (Gunton, 1998). The commitment by the provincial government to set up a special fund to guarantee alternative employment for

forest workers who may be laid off due to land use changes was also important in reducing opposition to land-use planning (Gunton 1998).

Inclusive representation. Two-thirds of participants agreed that all appropriate interests and values and all government agencies were adequately represented in the LRMP process. In response to the open-ended questions respondents cited inclusion of multiple interests most frequently as a major strength of the process. Open-ended responses also identified ineffective representation of stakeholders most frequently as a major weakness of the process and as the top area requiring improvement. The responses indicate that the principal problem was having too many representatives from what were viewed as the same interest group. This illustrates that the trade-off between inclusiveness and over-representation is a challenge in CP process design.

Voluntary participation and commitment. The process was voluntary, leaving stakeholders to decide whether it was in their best interest to participate. The vast majority of stakeholders chose to participate, and overall demonstrated high levels of commitment to making the process work (72%). There was a significant difference in responses to the two questions used to test commitment. While participants agreed that they personally were fully committed to the process (96%), less than half of participants (47%) perceived that other participants were equally committed. The disparity between stakeholders perception of their own commitment compared with their perception of the commitment of other stakeholders is striking and emphasizes the challenges in effective communication to overcome inaccurate perceptions of stakeholder motivations.

Self-design. Overall, the majority of respondents agreed (63%) that they had collaboratively designed the process to suit the individual needs of their table and its participants. There was a significance difference in response to the two questions used to test this criterion, with 79% agreeing that they had been involved in the design of the process but only 51% agreeing that they were able to influence the LRMP process on an ongoing basis.

Clear ground rules. Participants agreed that a clear procedural framework was established including clear terms of reference and operating procedures (71%). However, there was an important distinction between agreement that procedural rules were clearly defined (79%) and that participant roles were clearly defined (62%). Obviously, additional effort was required to define the role of stakeholders in the process.

Equal opportunity and resources. Only 56% of participants agreed overall that the equal opportunity criterion was met. Only 57% of participants agreed that they had sufficient funding, and only 34% of participants agreed that all interests or perspectives had an equal influence during the CP process. In addition, more than half of participants (53%) agreed that the process did not reduce power imbalances among participants. Responses to open-ended questions also identified inequity between stakeholders as a major concern in the process. Inequities, however, did not seem to affect the outcomes. On the other hand, over three-quarters of respondents (78%) agreed that they their participation made a difference in the outcomes of the LRMP process. It appears, therefore,

that stakeholders felt that they were able to affect the outcomes despite inequalities in power. While this does not preclude the need for mitigation of power imbalances, it does show that power imbalances are not fatal to the successful operation of a CP process.

Principled negotiation and respect. Principled negotiation, communication and the building of relationships and understanding among stakeholders, were all identified by participants as key strengths of the LRMP processes (63%). The process was very successful (83% agree) in encouraging open communication about participants' interests, and successful (78% agree) in fostering teamwork. Although successful, the process performed less well in terms of generating trust (56%), understanding (60%), and communication and negotiation skills (51%). Clearly, it is important that future processes ensure principled negotiation and respect among participants, and provide training to increase participants' skill levels in these areas.

Accountability. Overall, two-thirds of participants (69%) agreed that the LRMP process was accountable to stakeholders. The results show that stakeholders were successful in overcoming the two-table problem of participating in the multi-stakeholder planning table and their own constituency table. Most of the LRMP participants (79%) agreed that they received clear direction from their constituency groups. While participants were accountable, almost half (41%) indicated that the process design itself did not ensure accountability. In terms of accountability to the broader public, a slim majority (54%) agreed that the process was accountable, and only 57% agreed that the process had an effective strategy for public communication. This indicates the process should have done more to ensure accountability to the broader public.

Flexibility. Respondents agreed (72%) that the LRMP process was designed to allow for adaptation and creativity in problem solving.

High quality information. Just under two-thirds (64%) of respondents agreed that they had enough high-quality information for decision making. In terms of tools for incorporating information into decision making, participants generally used one, or both, of mapping resource values and multiple accounts analysis. Participants were very positive about the use of overlay maps (91%) and moderately positive (62%) about the use of multiple accounts analysis for evaluating land-use options. However, almost half of respondents agreed that the information on which decisions were based was deficient. This indicates that increased efforts to improve the quality of information and the effectiveness of its presentation to participants would have been valuable.

Time limits. Participant agreement that realistic milestones and deadlines were established and managed throughout the process was 58% (Figure 3). Participants were divided when asked whether the time allotted to the process was realistic; 52% agreed, 48% disagreed. While a majority of participants (65%) believed that deadlines were helpful in moving their process along, a significant minority (42%) felt that clear milestones were not established. In the open-ended responses, the length of the processes and poor timelines were also identified as weaknesses of the LRMPs. Participants made several suggestions, including

establishing clearer objectives at the beginning of the process, improving facilitation and increasing the use of independent process staff or external experts to do more preparatory work such as preparing information packages or drafts for participants to review. There is some conflict, therefore, between the objective of participant design and providing clear structure at the beginning of the process. The LRMP results show that the bias in achieving this balance between pre-design and self-design should favour pre-design. Stakeholders clearly felt that the LRMP process could have benefited from clearer structure at the beginning of the process and less discussion of structure options. Another finding from the case study is the importance of allowing sufficient time for the process to work. The average LRMP took about four years and, as Leach *et al.* (2002) conclude, premature evaluation or rushing the process can lead to failure.

Commitment to plan implementation. Plan implementation is cited as a failure of CP (Margerum, 1999). While some commitment to plan implementation existed in the LRMPs (59%), the strategies for implementation and level of commitment could be improved. The majority of participants (63%) agreed that the table members shared a strong commitment to plan implementation, but only 45% agreed that the table developed a clear strategy to do so. A preliminary evaluation of actual LRMP implementation, however, shows that implementation has been successful despite the lack of a clear implementation strategy developed by the LRMP table (Albert *et al.*, 2003).

Effective process management. Two-thirds of respondents agreed that the process was effectively managed. Participants were pleased with the design and management of the processes in terms of structure (64%) and highly skilled support staff (85%). Independent facilitation in the processes was helpful (75%), and facilitators were viewed as being skilled and unbiased (74%). In addition, process management, particularly facilitation, chair and strong support staff, were identified by participants as key strengths of the processes in the open-ended responses. In addition, while still positive, fewer participants believed the support staff and lead agency demonstrated neutrality (62% and 64% respectively). These results emphasize the importance of skilled, independent and unbiased management of such processes.

Independent facilitation. Independent facilitation was strongly supported by respondents (75%). Respondents agreed that independent facilitation improved the effectiveness of the process and that the facilitators acted in a neutral manner. However, facilitation was used intermittently in the process, and in some cases the chair played a dual role of chairing and facilitating. Almost 20% of respondents indicated that there was not a facilitator in their process.

Designing an Effective Collaborative Planning Process

The results from the evaluation show that the LRMP process was successful in terms of achieving consensus or near consensus land use plans. Given the intensity of value based conflict among stakeholders, the achievement of consensus land-use plans for most of the provincial land use base is a remarkable outcome that illustrates the benefits of CP relative to previous processes that had failed. The LRMP process also produced important additional benefits including

improved skills, improved knowledge and improved stakeholder relations. Participant responses show that these additional benefits were the most successful component of the LRMP processes, confirming view that the most valuable contribution of CP may be the generation of social and political capital not the plan. The results of the evaluation, therefore, confirm the benefits of CP and illustrate that CP must be evaluated from a multi-objective perspective that goes beyond the preparation of a plan or agreement.

Why was the process successful and what lessons from the LRMP experience can be learned for designing CP processes? One way this question was answered was to ask participants in the LRMP processes to identify and rank the significance of various factors affecting success. Survey participants were asked to rank on a four-point scale ranging from not important to very important a list of factors derived from the literature as well as any additional factors they wished to add. The survey results show that while there was some variation in the ranking, all factors were considered important to very important (Table 5). This list of criteria, therefore, defines the requisites for a successful CP process.

A second way of identifying keys to success is to test the correlation between successful outcomes and characteristics of the process. This is ongoing part of the research programme by the authors but is beyond the parameters of this paper. Nonetheless, a general observation can be made by interpreting the survey results to determine which of the criteria affecting success were met in the LRMP process. Given that all LRMP processes were successful in reaching agreement, the criteria that were met in the process are all correlated with a successful outcome. The results show that all criteria were met or partially met except for one: equal opportunity. This suggests that inequality in power among stakeholders is not necessarily a fatal flaw undermining the process. Although a more sophisticated analysis needs to be done with a larger data set of CP cases, the results show that all other criteria are correlated with a successful CP process. This correlation reinforces the high ranking of all the criteria by the participants.

The LRMP process also illustrates some of the challenges and caveats that must be kept in mind when managing a CP process. First, the external environment needs to be conducive to CP. The external pressure on the forest sector exerted by legal challenges, boycotts and blockades was an important factor encouraging them to participate in the LRMP process. Awareness that government would make a unilateral decision in the absence of a stakeholder agreement was another motivating factor. This was reinforced by making stakeholders aware that the government was committed to the process and to the implementation of process outcomes and providing a 'no losers' policy to reduce opposition to proposed land-use changes.

Second, although it is important to allow for stakeholder self-design of the process, the survey results show that the balance between pre-design by process managers and self-design by process stakeholders should favour pre-design. Stakeholders clearly felt that the LRMP process could have benefited from clearer structure at the beginning of the process and less discussion of structure options.

Third, the process must be managed with clear but realistic timelines. Consistent with findings from other studies (Leach *et al.*, 2002), this study shows that it takes approximately four years to complete a CP process and that rushing the process can lead to failure.

Fourth, it is critical to address the issue of equality among stakeholders by providing funding, training, support and neutral facilitation to help all representatives participate effectively. This was clearly a significant issue in the LRMP processes, and while it did not appear to bias the outcome towards the more powerful groups, additional attention to achieving equality is required.

Fifth, the survey results show that accountability of the process to the broader public must be addressed by communicating and engaging the general public in the process through mechanisms such as newsletters, open houses and workshops. This increases the probability that the broader public understands how decisions are taken, and that the interests of the broader public are included in decision making and final plan recommendations.

Finally, consensus agreement on the plan should not be interpreted as full satisfaction with the plan or process. The survey results indicate that while all the plans were accepted by consensus or near consensus, 44% of stakeholders were not satisfied with the outcome. Strategies to manage disagreement even when there is consensus are required to achieve successful implementation.

Conclusion

Overall, the experiment with the collaborative planning process in land-use planning in British Columbia was a remarkable success in promoting agreement among stakeholders who during the 1980s had become antagonistic and conflictive. CP allowed stakeholders to move from intense conflict to respectful negotiation, when previous processes using more traditional techniques such as public consultation, task forces and expert committees had failed. The outcome has been consensus, or near consensus, land and resource management plans for most of rural British Columbia. CP also produced important additional benefits including improved relationships, increased understanding and networks among diverse stakeholders. Significant learning took place, and information and knowledge were shared. Participants developed skills and an understanding of collaborative tools for future decision making. In sum, the case study evaluation confirms that the use of CP is feasible and desirable even in cases such as BC, which are characterized by fundamental value conflicts.

The case study also identifies some keys to successful CP management. Default decision processes are essential to discourage delaying tactics and to motivate participants to reach agreement at the negotiating table. An effective CP process requires clear objectives, clear structure, realistic timelines of about four years, and adequate staff and information resources. The process requires broad stakeholder participation and measures such as training and financial assistance to reduce inequalities between stakeholder groups. The process must be accountable to the broader public through a complementary public participation process and retention of final decision making by democratically accountable bodies. The case study also shows that it is important to avoid interpreting consensus agreement as identical to stakeholder support. External conditions affecting BATNAS must also be conducive to CP.

The British Columbia experience demonstrates that, while CP processes are challenging to manage and are not a panacea, a properly managed CP is a feasible and valuable tool for the resolution of environmental conflicts. In particular, it provides additional evidence of many of the unique benefits of the CP process beyond agreements. It is these additional benefits that may be critical

Table 5. Criteria determining success in collaborative planning process

Criterion	Significance	Met in process
1. Effective process management	very important	yes
2. Clearly defined purpose and objectives	very important	yes
3. Inclusive representation of all relevant interests	very important	yes
4. Access to high quality information	very important	partially
5. Mutual respect and trust in negotiation	very important	partially
6. Clear rules of procedure	very important	yes
7. Participants have a clear understanding of their own and others' interests	very important	partially
8. Accountability and openness of process to the public	very important	partially
9. Commitment to plan for implementation and monitoring	very important	partially
10. Commitment of stakeholders to process because of low BATNA	very important	yes
11. Accountability of representatives to their constituencies	important	yes
12. Process design that is flexible and adaptive	important	yes
13. Clearly defined consequences/alternative if consensus not reached	important	yes
14. Participants having equal opportunity	important	no
15. Participants have equal resources	important	partially
16. Use of an independent facilitator	important	yes
17. Clear timetable (including deadline for reaching agreement)	important	partially
18. Consensus requirement	important	yes
19. Voluntary participation	important	yes
20. Urgent and significant issues	important	yes
21. Process designed by participants but with use of a clear framework	important	yes

Significance rankings of criteria were provided on a four-point scale as follows: not very important, somewhat important, important and very important. The ranking in the table is the average response. Responses on process criteria were given on a four-point scale, which was converted to a numerical scale as follows: strongly agree (2), agree (1), disagree (-1), and strongly disagree (-2). Scores for each criterion were calculated by averaging the numerical scores for all statements relevant to the criterion. If the average score is greater than or equal to 0.50, the criterion is considered to have been satisfied, if it is less than or equal to -0.50 is not satisfied and if is between 0.50 and -0.50 the criterion is considered to have been only partially satisfied

tools in the longer-term pursuit of sustainability. These processes can integrate social, economic, and environmental principles and goals. They also can increase the capacity of participants, develop shared intellectual and social capital, generate dynamic learning, and result in a system that can adapt more creatively to change.

As a final comment it should be noted that the empirical basis for definitive conclusions about CP is constrained by the limited number of evaluations and methodological challenges such as defining success, comparing the performance of CP to alternative processes, identifying with reasonable statistical certainty the keys to success, and relying on potentially biased participant observations to assess outcomes and process characteristics. Although this study also used the objective outcome criterion of whether an agreement was reached, this study shares all these limitations. Additional research is required to expand the

database to include more cases, disaggregate results by participant and by planning process to identify factors that may explain differences in outcomes, and develop objective evaluation measures to complement participant observations. Despite these limitations, this study provides convincing new evidence on the merits of CP based on a comprehensive evaluation of the most systematic applications of CP to date.

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Appendix: Survey

A. Process Criteria

To what extent do you agree or disagree with each of the following statements about the LRMP process. (Responses were based on the scale:)

- strongly agree
- agree
- disagree
- strongly disagree
- not applicable

Purpose and Incentives

1. I became involved in the process because I/my organization felt it was the best way to achieve our goals/ with respect to land-use planning.
2. The issues we were dealing with in the LRMP process were significant problems requiring timely resolution.
3. Stakeholders had a clear understanding that if no consensus was reached, the provincial government would make the decisions.
4. I had clear goals in mind when I first became involved in the LRMP process.
5. The process participants collectively identified and agreed upon clear goals and objectives.

Inclusive Representation

6. All appropriate interests or values were represented in the process.
7. All government agencies that needed to be involved were adequately represented.

Voluntary Participation and Commitment

8. I was fully committed to making the process work.
9. All participants were committed to making the process work.

Self-design

10. I was involved in the design of the LRMP *process* (i.e. ground rules, roles, procedures).
11. On an ongoing basis, I was able to influence the *process* used in the LRMP.

Clear Ground Rules

12. Participant roles were clearly defined.
13. The procedural ground rules were clearly defined.

Equal Opportunity and Resources

14. I had or received sufficient training to participate effectively.
15. I had or received sufficient funding to participate effectively.
16. All interests/perspectives had equal influence at the LRMP table.
17. The process reduced power imbalances among participants.
18. My participation made a difference in the outcomes of the LRMP process.

Principled Negotiation and Respect

19. The process encouraged open communication about participants' interests.
20. All participants demonstrated a clear understanding of the different stakeholder interests around the table.
21. The process generated trust among participants.
22. The process fostered teamwork.
23. The process was hindered by a lack of communication and negotiation skills.

Accountability

24. Due to constraints of the process, I was unable to effectively communicate with and gain support from my constituency.
25. The organization/sector/group I represented provided me with clear direction throughout the process.
26. Generally, the representatives at the table were accountable to their constituencies.
27. The process helped to ensure I was accountable to the constituency I was representing.
28. The process had an effective strategy for communicating with the broader public.
29. The process was effective in representing the interests of the broader public.

Flexible, Adaptive, Creative

30. The process was flexible enough to be adaptive to new information or changing circumstances.
31. Participants were given the opportunity to periodically assess the process and make adjustments as needed.

High Quality Information

32. The process lacked adequate high quality information for effective decision making.
33. The process was well prepared with the information needed to accommodate protected areas within the LRMP.
34. The overlay of resource values on maps was a useful technique for evaluating land-use options.
35. The multiple accounts method was a useful way of evaluating land-use options.

Time Limits

36. The time allotted to the process was realistic.
37. The process had a detailed project plan (for the negotiation process) including clear milestones.
38. Deadlines during the process were helpful in moving the process along.

Commitment to a Plan for Implementation

39. At the end of the process, the table participants shared a strong commitment to plan implementation.
40. The table developed a clear strategy for plan implementation.

Effective Process Management

41. The process was hindered by lack of structure.
42. Process staff (including facilitator(s) if used) were skilled in running meetings.
43. Process staff acted in a neutral and unbiased manner.
44. The agency responsible for managing the LRMP process acted in a neutral and unbiased manner.

Independent Facilitation

45. The presence of an independent facilitator/mediator improved process effectiveness.
46. The independent facilitator/mediator acted in an unbiased manner.

B. Outcome Criteria

Perceived as Successful

1. The LRMP process was a positive experience.
2. The LRMP process I participated in was a success.
3. I am satisfied with the outcome of the process.

Agreement

4. The resulting plan addressed the needs, concerns, and values, of the group I represented.

Conflict Reduced

5. As a result of the LRMP process, conflict over land use in the area has decreased.

Superior to Other Methods

6. The LRMP process was the best way of developing a land use plan.
7. My/my organizations' interests have been accommodated better through the LRMP process than they would have been through other means.

Creative and Innovative

8. The planning process produced creative ideas for action.

Knowledge, Understanding and Skills

9. As a result of the process, I have a good understanding of the interests of other participants.
10. As a result of the process, I have a better understanding of my region.
11. As a result of the process, I now have a better understanding of how government works with respect to land and resource management.
12. I gained new or improved skills as a result of my involvement in the process.

Relationships and Social Capital

13. The relationships among table members improved over the course of the process.
14. I have better working relationships with other parties involved in land-use planning as a result of the LRMP process.
15. Contacts I acquired through my participation in the LRMP process are useful to me and/or my sector/organization.

Information

16. Information acquired through my participation in the LRMP process is useful to me and/or my sector/organization.
17. I have used information generated through the LRMP process for purposes outside of the process.
18. The LRMP process produced information that has been understood and accepted by all participants.

Second-order Effects

19. I have seen changes in behaviours and actions as a result of the process.
20. I am aware of spin-off partnerships or collaborative activities or new organizations that arose as a result of the process.

Public Interest

21. I believe the outcome of the LRMP process served the common good or public interest.
22. The government should involve the public in land and resource use decisions.
23. I believe that consensus based processes are an effective way of making land and resource use decisions.
24. Knowing what I know now I would get involved in a process similar to the LRMP again.

C. Ranking of Criteria for Success

Based on your experience of having participated in a consensus based shared decision-making process, how important is each of the following factors in achieving a successful process and outcome? (Response were based the scale:)

- strongly agree
- agree
- disagree
- strongly disagree

1. Inclusive representation of all relevant stakeholder/interest groups.
2. Voluntary participation (all participants are free to leave at any time or pursue other avenues if agreement not reached).
3. Commitment of stakeholders to the process because it was the best way of meeting objectives.
4. Clearly defined purpose and objectives.
5. Consensus requirement.
6. Clearly defined consequence or alternative outcome if consensus not reached (e.g. knowing the provincial government would make the decisions if no consensus reached).
7. Urgency of issues addressed in the process providing incentive to reach agreement.
8. Process designed by participants.
9. Clear rules of procedure.
10. Participants having equal opportunity and resources (skills, resources, money, support).
11. Mutual respect and trust in the negotiation process.
12. Effective process management (including process co-ordinator/staff).
13. Timetable (including deadline for reaching agreement).
14. Use of an independent facilitator or mediator.
15. Stakeholder groups having a clear understanding of their own and other stakeholders' interests.
16. Accountability of representatives to their constituencies.
17. Accountability and openness of process to the public.
18. Access to high quality information.
19. Process design that is flexible and adaptive.
20. Commitment to a plan for implementation and monitoring.

D. Open-ended Questions

What were the key factors determining success?

What were the most significant achievements of the planning process?

Who benefited most from the outcomes of the process?

What were the key strengths of the process?

What were the key weaknesses of the process?

The planning process could have been more effective by making the following changes

What barriers do you perceive might block implementation of the LRMP?

What advice would you give someone who was thinking of participating in a future LRMP?

Would you like to make any additional comments?

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