Joint Forest Management

An annotated bibliography of selected sources

Erin Sherry
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March 2003

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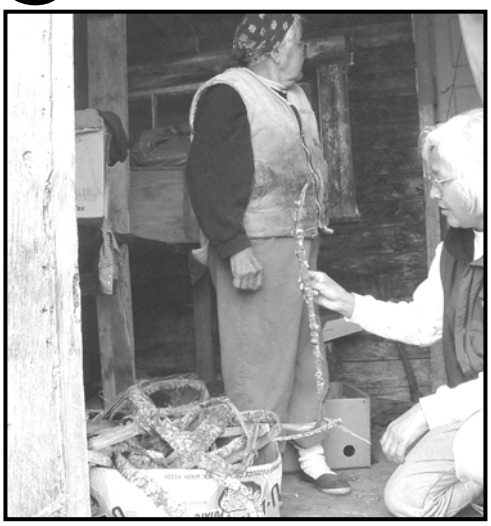

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University of Northern British Columbia, Geography Program
in partnership with
Chuzghun Resources Corporation

Funding provided by Forestry Innovation Investment - Forest Research Program

PREFACE

This annotated bibliography is a result of Phase I of the project *Criteria and Indicators of Joint Forest Management*, conducted by the University of Northern British Columbia in partnership with Chuzghun Resources Corporation. It is a guide to recent research on joint resource management in national and international contexts, with a particular emphasis on forest management. It is an aid for communities and organisations that are initiating management partnerships or beginning research in the field.

This annotated bibliography consists of 85 entries. The works annotated here have been selected from among a vast number of potential sources, and are those that the authors consider most representative and most helpful. This publication focuses on papers, books, and reports from the last decade, with emphasis on more recent works. Core areas of joint resource management theory and practice are covered, including co-management, joint ventures, community forests, criteria and indicators, community participation in forest management, local and traditional knowledge, shared decision-making, and sustainable forestry. Annotations are listed in alphabetical order by author. Each entry contains a complete citation for the work in American Psychological Association format, an abstract, and when available online, a web address. This publication was prepared with financial support from the Forestry Innovation Investment - Forest Research Program.

- Alden-Wily, L., Akida, A., Haule, O., Haulle, H., Hozza, S., Kavishe, C., et al. (2000). Community management of forests in Tanzania - A status report at the beginning of the 21st century. *Forests, Trees and People Newsletter, 42*, 36-45.

In 1994, eight communities officially took over the management of 9000 ha of deteriorating forest from the government of Tanzania with a view to halting destructive uses of the forest and assisting with its rehabilitation. These communities divided the forest into management areas referred to as *village forest reserves*, each managed by one of the eight village governments using similar management regimes (by-laws establishing protected and permitted use zones). The experiment was extremely successful and is used as a model for community-based management of other degraded resources within Tanzania, as well as for other African states. This article takes another look at the policies and practices surrounding community-based forest management (CBFM) in Tanzania since the creation of these village forest reserves. The article focuses on Tanzania's new National Forest Act, which contains a commitment to devolution of resource management functions and contributes to a positive environment for the development of CBFM. The National Forest Act ensures that every forest management plan describes how local communities will be involved in forest management. In recent years, there has been an orientation in CBFM towards power-sharing such that communities are not simply users of forest resources but are autonomous managers or owners of those resources with a stake in sustainable management. This is not token community participation; rather, village councils have the power to forcefully regulate the management of local forests through passing bylaws and enforcement regulations. In terms of practice, the authors provide several examples of the continued expansion of CBFM to other Village Forest Reserves as well as Government Forest Reserves. The authors emphasise that CBFM is first and foremost a process about sharing power at the grassroots level. A new and evolving system, it is faced with several challenges or constraints related to: implementation at the grassroots level, the lack of central government

support, constraints in funding, the revolution CBFM causes within the local community (i.e., generating local intolerance for poor leadership), and overlap issues. Nevertheless, CBFM's development is occurring within a positive environment and is viewed as the most effective means of saving Tanzanian forests.

- Arctic Institute of North America. (1995). *Circumpolar Aboriginal People and Co-Management Practice: Current issues in co-management and environmental assessment*. Workshop on co-management and environmental assessment, November 20-24, Inuvik, NWT, Canada.

This publication summarises current experiences with northern co-management regimes and environmental assessment practices in Canada, the United States, Russia, Greenland, and England. The report focuses on several issues in co-management practice, namely community participation, incorporation of traditional knowledge, land claims, decision-making, and developing co-management structures. The products of this workshop include evaluative criteria for assessing the success of co-management arrangements, recommendations for improving co-management practice, and suggestions for the creation of effective co-management committees. Case study evaluations of existing northern co-management regimes, which elaborate on successes, failures, and lessons for co-management practitioners, are provided. This report focuses on the Nunavut Wildlife Management Board, the Vuntut Gwitchin Renewable Resource Council, the Inuvialuit Co-Management regime, the James Bay Agreement, and the Porcupine Caribou Management Board.

- Baral, J.C., & Subedi, B.R. (2000). Some community forestry issues in the Terai, Nepal: Where do we go from here? *Forests, Trees and People Newsletter, 42*, 20-25.

Using results from a 1999 study of 20 Terai districts, this article explores issues and problems related to community forestry. Methods used in this research include group discussions, informal interviews with Forest User Groups (FUG), executives and members of District Forest Offices, and field visits. The authors begin by placing community forestry in Terai into the context of community forestry in Nepal generally. Some of the difficulties encountered are a direct result of the Terai being a latecomer to this form of forest management and the speed with which this transformation is occurring. When responsibility for forest management was transferred to communities in the region, the necessary resources to support the process did not accompany it. Observations in the field indicate that while there is evidence of forest regeneration brought about by transferring control of forests to the local level, there are several issues of concern. The form of community based management utilised in the Terai involves transferring forest management to adjacent communities via a Forest User Group. In many cases, elites have taken executive positions and effective control of FUGs resulting in inequitable distribution of forest benefits; loss of user rights by marginalised communities due to land grabbing; lack of transparent and democratic decision-making procedures; complaints of corruption, serious rights infringements, and mismanagement; decreasing national government revenues from Terai forests; and increasing pressure on remaining government forests due to the closure of community forests for protection and regeneration. The long-term sustainability of Terai community forests is in doubt; decision-making is undemocratic or non-consensus based, and is thus perceived as unfair. There are also questions of whether or not FUGs (with their questionable management skills) have the capacity to handle not only the physical management of the forest, but socio-economic factors as well. While the authors do not advocate a halt to the community forestry process, they insist the government provide clearer goals and principles to guide decision-making, as well as serious and sustained support. This entails recognition by the government that community forestry is a social process requiring not just transfer of control to the local level, but also equitable management structures

and well defined user rights. The authors conclude by suggesting two areas for further research, including the method by which community forests are allocated and the limits of community forestry as a management system.

- Beckley, T.M. (1998). Moving toward consensus-based forest management: A comparison of industrial, co-managed, community, and small private forests in Canada. *Forestry Chronicle, 74*(5), 736-744.

This paper discusses new institutions for forest management in Canada that have arisen to address society's changing relationship with forests, namely co-management and community forests. Beckley compares these alternative systems with traditional forest management (industrial forests and small, private forests) according to several factors, including locus and structure of decision-making, scope of management objectives, tenure structure, scale, and knowledge base. Opportunities and constraints in the application of co-management are discussed. The author draws upon three cases of forest co-management - The Nootka Sound Coalition, the NorSask Forest Management License Agreement, and the Wendaban Stewardship Authority. The gap between the theory and practice of co-management is made explicit. Given the short history of co-management in forestry, many existing applications are still in an early stage of development; thus, the author views his treatment as incomplete.

- Berkes, F. & Feeny, D. (1990). Paradigms lost: Changing views on the use of common property resources. *Alternatives, 17*(2), 48-55.

This article contests one of the conventional paradigms of common property resource management, 'the tragedy of the commons'. The authors provide background on the philosophical divide between Hardin's paradigm and the emerging co-management paradigm. They discuss three property rights regimes: private, state, and communal. They explain the rediscovery of communal

institutions as effective solutions to the commons problem. The article emphasises the necessity of consensus decision-making, transferring power and control to local level institutions, and incorporating local/traditional knowledge systems into the management process. Berkes and Feeny suggest a long-term success in common property resource conservation will depend on implementing the underlying principles of co-management. This work emphasises institutionalisation of the rights and responsibilities of resource users, and claims that indigenous knowledge systems, supported rather than undermined by government, are the key to conservation.

- Berkes, F., George, P. & Preston, R.J. (1991). Co-management: The evolution in theory and practice of the joint administration of living resources. *Alternatives, 18*(2), 12-18.

This paper characterises state-level and local-level wildlife management. Various critical components of co-management, such as consensus decision-making, data collection, capacity building among co-management partners, user group conflict resolution, and resource allocation, are discussed. The authors advance a hierarchical model of co-management based on Arnstein's ladder of citizen participation (which, since its publication, has come to be regarded as a classic model for understanding state/aboriginal resource management interactions). Arnstein's top-down ladder consists of various degrees of power-sharing and community involvement. The continuum consists of seven discrete steps and their corresponding endpoints. 'Informing' is followed by 'consultation', 'co-operation', and 'communication'. Co-management begins at level five, known as 'advisory committees'; at this point, two-way flow of information and the sharing of power and responsibility begins. Level six, 'management boards', and level seven, 'partnership and community control', include increasingly greater levels of public participation and the integration of local knowledge and practices into management. The paper evaluates the major benefits of co-management in terms

of ecological, socio-cultural, and economic sustainability for the James Bay Cree. The authors provide strong arguments promoting joint management institutions. They highlight barriers impeding co-management progress such as contradictory values systems among partners, and the expansiveness and remoteness of the areas being managed.

- Binder, L.N. & Hanbidge, B. (1993). Aboriginal people and resource co-management: The Inuvialuit of the western Arctic and resource co-management under a Land Claims settlement. In J.T. Inglis (Ed.), *Traditional ecological knowledge: Concepts and cases* (pp. 121-132). Ottawa, Canada: International Development Research Centre.

The Inuvialuit Final Agreement (IFA) resulted in the creation of the Inuvialuit Game Council, an organisation responsible for all matters related to wildlife and environment in the Inuvialuit Settlement Region. Five other co-management committees were established to further guide resource and land management from initial consultation to final decision-making stages. These joint stewardship boards contain 50% Inuvialuit representation, are consensus-based, use non-adversarial means of negotiation, and are considered successful from state, industry and Aboriginal perspectives. IFA co-management provides an efficacious model for other First Nations who aspire to become equal partners in resource management through comprehensive land claim settlements. This case demonstrates that wildlife co-management can promote ecologically sustainable use, social health, cultural sustainability, and economic well being in northern Aboriginal communities.

- Blouin, G. 1998. Public involvement processes in forest management in Canada. *Forestry Chronicle, 74*(2), 224-226.

Eighty-five percent of the productive forestland in Canada is provincial Crown land. This paper examines public participation in the use and management of this land base. According to Blouin, as a result of the broadening of societal values and the non-timber benefits expected from the forest, public interest in forestry has grown during the last decade. Four cornerstones of effective public participation processes are outlined: equitable representation of all interests; access to relevant information; fair, open, and effective decision-making (which involves recognition of the principles of democratic participation, respect for diversity and plurality of opinion, and conflict resolution through dialogue, negotiation, and compromise); and informed participants. Benefits of public participation are reviewed. More insightful, representative decisions, reduction or avoidance of conflict and confrontation, increased credibility of the planning and management process, and education of all parties are key benefits. Costs of public participation include increased time and money, uncertainty of outcomes in a new area of endeavour, and decision-makers' loss of control and need to compromise in satisfying their own objectives. Several examples of public participation processes underway in Canada are reviewed. Blouin examines the case of town hall meetings held by Repap Paper Inc. for the community of Miramichi, New Brunswick; the case of Abitibi Price and an experimental round table set up in Quebec to provide input into their five-year management plan; and the regional planning processes set up by the Commission on Resources and Environment in British Columbia.

- Bombay, H. (1996). *Aboriginal forest-based ecological knowledge in Canada*. Ottawa, Canada: National Aboriginal Forestry Association.

This paper contributes to the international discussion on improved sustainable forest management. Bombay suggests that, as stewards of the land, Aboriginal people want to assume their rightful place in sustainable forest management and to address the failures of industrial forestry. A broad overview of Aboriginal forest-based ecological knowledge is provided. The processes and practices by which this knowledge is

implemented in contemporary forest management in Canada are reviewed. Aboriginal and treaty rights, government initiatives, Aboriginal forest-based business, and co-management are discussed as vehicles for Aboriginal involvement in forestry. Six case studies are examined to illustrate the application of Aboriginal knowledge in specific forestry circumstances, including the Gitxsan, Nuu-Chah-Nulth, Barriere Lake Algonquin, Eeyou Astchee Cree, Dene Nation, and Alberta Metis. Challenges related to the acceptance and utilisation of Aboriginal forest-based ecological knowledge are outlined, including: the effects of international trade agreements; the loss of traditional lands, lifestyles and languages; jurisdictional issues; legislative and policy restrictions; chauvinism; and paternalism. The integration of Aboriginal knowledge and western scientific knowledge, the role of traditional governance in forest stewardship, and the benefits and risks of information sharing are also addressed.

- Bombay, H. (1993). Many things to many people: Aboriginal forestry in Canada is looking toward balanced solutions. *Cultural Survival Quarterly, 17*(1), 15-18.

This article discusses the importance of forests to Canada's First Nations as their home, hunting grounds, and ceremonial lands. For many of these groups, forest management means cultural and community survival. Bombay maintains that Canada's forests are being felled with unprecedented speed due to short-sighted government policies and entrenched industry interests. Aboriginal forestry in Canada is developing in this context of rapidly diminishing forest resources. Bombay explains traditional forest use and management approaches, and details contemporary Aboriginal aspirations related to the forest economy. He notes that Aboriginal people have a distinct land ethic; people are a small and dependent part of a larger, ecological web. From this ethic stem the Aboriginal forestry ideals of balanced resource use and sustainable community development. Aboriginal approaches to forest management are described as complex due to overwhelming economic and social challenges. Meeting Aboriginal forestry ideals is difficult on a shrinking land base and in an environment of competition with profit-oriented forest companies.

The article then focuses on a case study of Tanizul Timber, British Columbia's largest Aboriginal forestry operation (at the time of publication). Tanizul is owned and operated by Tl'azt'en Nation of north central BC, who have a 25-year Tree Farm License to harvest and manage 125000 acres. Bombay explores the many challenges resulting from this timber business as the community searches for balance between deriving significant social and economic benefit from their forested homelands.

- Booth, A.L. (1998). Putting "forestry" and "community" into First Nations' resource management. *Forestry Chronicle, 74*(3), 347-352.

Booth explores definitions of community forestry from an Aboriginal perspective. Community forestry is defined structurally as "a form of forest tenure" and philosophically as "forestry in which community values and needs are paramount". Booth argues that both definitions need to be incorporated into First Nations' forestry operations to guarantee long term success. The idea and practice of First Nations community forestry are investigated through two case studies, one of the Menominee Tribal Forest in Wisconsin and one of Tree Farm License 42 operated by Tl'azt'en Nation. The author believes that First Nations' perspectives on the natural world and beliefs about appropriate human conduct towards nature are compatible with the concepts underlying community forestry. She proposes that this type of forest tenure can meet Aboriginal economic goals related to job creation and to an increased standard of living, while harmonising traditional values and management approaches with resource extraction. She emphasises that, for First Nation communities, meeting social (e.g., training and education) and cultural needs (e.g., subsistence land use) are as important as achieving large profits and operational efficiency. Two core challenges that exist for Aboriginal forestry are described: reconciling traditional values with non-traditional resource extraction activities, and providing for substantive community involvement in forestry decision-making. The Menominee Tribal Forest operation is examined as a prototype community forest: one that meets community values and goals and

returns benefits directly back to Menominee. Tl'azt'en participation in Tree Farm License 42, Tanizul Timber, and Teeslee Forest Products are also explored.

- Booth, A.L. (2000). *A workbook on First Nations and community forestry*. Unpublished report. Prince George, Canada: University of Northern British Columbia.

This workbook focuses on nearly twenty years of Tl'azt'enne experience operating Tree Farm License (TFL) 42 as a community forest. It is the result of a collaborative project between Tl'azt'en Nation and University of Northern British Columbia aimed at assisting Tl'azt'enne to better plan for the future development of forest resources and to better address community cultural and economic needs. The workbook is intended to assist community members and resource managers in examining the concept of community and in designing community-based forestry operations. It highlights important lessons learned in the case of Tl'azt'en Nation, Tanizul Timber, and Teeslee Forest Products, and uses numerous direct quotations from interview respondents to illustrate key findings. Several steps on the pathway to community forestry are examined, including defining community, building a process for forest planning, keeping the community interested and involved, running a successful business, working with external forest stakeholders, addressing ecological considerations, and choosing a tenure structure. A useful annotated bibliography is appended, which focuses on practical guidelines for rural community planning and development, participatory action research, community auditing, community participation techniques, community strengthening, and community organising.

- Bootes, L. & van Rensburg, D. (2000). Community participation in development: Nine plagues and twelve commandments. *Community Development Journal, 35*(1), 41-58.

The dynamics of community participation are examined in this article to expose nine obstacles and twelve guidelines to address the impediments associated with participatory development. Obstacles constraining participatory development include institutional, socio-cultural, technical, and logistical. The authors distinguish between obstacles that are external (factors outside of the end-beneficiary community that prevent true community participation from taking place) and internal (factors internal to the end-beneficiary community), and obstacles that are a combination of both. External obstacles identified in the article include the paternalistic role of development professionals, an inhibiting and prescriptive government orientation towards promoting participation, over-reporting of development success, the tendency among development agencies to encourage selective participation (e.g., involve more visible, vocal, and wealthy groups), and a bias towards addressing hard issues (e.g., technological, physical, material, and financial needs). Internal obstacles identified relate to conflicting interest groups, gate-keeping by local elites, and lack of public interest in becoming involved. Combined obstacles refer to excessive pressure for immediate results at the expense of process and techno-financial bias. The authors caution that there are no 'quick fixes' to achieving participation and that the complexity of community dynamics prevents the development of blueprints to promote participation. They suggest some tentative guidelines for facilitating participatory development such as respect for local contributions, shared decision-making, communication of successes and failures, listening, representative participation, attention to process-related issues, and enabling the community without exhausting or exploiting them. Participatory development is found to be a complex and difficult, although essential, endeavour.

- Brubacher, D. (1998). Aboriginal forest joint ventures: Elements of an assessment framework. *Forestry Chronicle, 74*(3), 353-358.

Brubacher describes forestry as a cornerstone for the emerging Aboriginal economy, a vehicle to address major social, cultural, and economic challenges, and a route to self-government. He discusses significant barriers to First Nations' participation in the forest industry and describes communities' limited capacity to overcome these barriers or respond to opportunities. Joint ventures are explored as a mechanism to gain entry into the local resource sector; to build First Nations' business capacity and economic base, and to utilise the knowledge, experience, and marketing position of strategic partners. Several case studies are reviewed, including the Kitsaki Development Corporation owned by the LaRonge Indian Band; Nabakatuk Forest Products Inc., a joint venture milling company of the Waswanipi Cree and Domtar Inc.; and West Chilcotin Forest Products, a joint venture milling company of the Ulkatcho First Nation, CAT Resources Inc., and Carrier Lumber Ltd. The author presents a framework for analysing Aboriginal-industry joint ventures in order to understand the factors leading to success or failure. Five factors venture partners can use to assess their arrangement are described, including the context in which the venture was developed, the objectives of the parties entering into the arrangement, the accountability framework within which each partner functions, the contribution made by each partner to the venture, and the risks introduced by each partner to the venture.

- Burda, C. (1997). Community forestry in British Columbia, Canada: A socio-economic and ecological perspective. In Victor, M. (Ed.), *Community forestry at a crossroads: Reflection and future directions in the development of community forestry* (pp. 77-83). Proceedings of an International Seminar, Bangkok, July 17-19. Bangkok, Thailand: RECOFTC Report No. 16. Source: http://www.recoftc.org/documents/Inter_Reps/ Crossroads/Burda.pdf

This paper describes two recent challenges to industrial forestry in British Columbia: the environmental movement and the community forestry movement. The economic and ecological consequences of logging temperate rainforests are reviewed, namely biodiversity loss, stream degradation, and soil erosion. Several consequences of corporate control of "public forests" are outlined, including loss of old growth, waning timber supply, decline of resource dependent communities, community instability, and unemployment. The author explains the BC forest tenure system and the constraints it presents to small, local mill operators and Aboriginal peoples. The environmental movement and the "jobs versus environment" conflict it has generated among various forest-users and stakeholders is reviewed. The community forestry movement is presented as an antidote to these failures. Communities in British Columbia aspire to establish locally based management systems whereby the forest is managed holistically, rather than as a plantation, and benefits are retained within the community. The author suggests that policy and tenure reform would allow for community control of local forests to achieve both socio-economic and ecological objectives. Despite increasing demands for community forestry, no community tenure exists. Communities are limited to corporate-type tenures, such as Tree Farm Licenses and Forest Licenses, which restrict decision-making authority, and require adherence to standard practices and government-determined levels of production. The author concludes that a new type of ecosystem-based, community forest tenure is required to ensure: local decision-making and control of a defined area, local control of benefits, and maintenance of long-term ecological integrity. To date, seven Aboriginal and non-Aboriginal communities have pursued this alternative tenure arrangement but failed in their attempts, impeded by current tenure and legislation frameworks. The proposed Community Forest Trust Act (CFTA) is described; it would allow public forests to be placed in a trust arrangement with a community and shift the locus of control to communities. The author concludes that the CFTA offers an incremental, ecological and economic solution for multi-sectoral interests.

- Campbell, T. (1996). Co-management of Aboriginal resources. *Information North, 22*(1), 1-6.

Co-management is characterised as both a cornerstone and a barometer in the relationship between Aboriginal and non-Aboriginal society in this article. The history of Aboriginal exclusion from the management and development of land and resources is explained and the evolution of Aboriginal participation in British Columbia resource management is outlined. The author details the origins of co-management structures in Canada and, in particular, critically evaluates an early northern co-management regime under the Inuvialuit Final Agreement. Campbell addresses several barriers to the effective application of co-management principles such as co-optation, tokenism, heavily institutionalised processes, resistance to non-traditional conflict resolution, manager's/biologist's paternalistic and proprietorial attitudes, and a failure to substantially transfer of decision-making power.

- CIFOR C&I Team. (1999). *The CIFOR criteria and indicators generic template.* Criteria and Indicators Toolbox Series No.2. Jakarta, Indonesia: Centre for International Forestry Research.

Prompted by global concern over deforestation, national and international initiatives have created and tested C&I for sustainable forest management. CIFOR is foremost among research institutes involved in C&I development. This guide provides a comprehensive set of criteria and indicators for sustainable forest management based on interdisciplinary research conducted in large-scale, natural forests managed for commercial timber in Indonesia, Cote d'Ivoire, Brazil, Cameroon, Germany, Austria, and the United States. The generic C&I set is flexible and applicable to all types of forests; the authors intend it to be modified and customised to suit specific local circumstances. Although primarily applicable to species-rich forests in the humid tropics, the majority of CIFOR C&I can also be applied to temperate forests. The generic C&I template can be used by a variety of users such as certification

bodies, forest managers, governments, and corporations. It is intended to provide users with a starting point to formulate more locally relevant C&I for a number of applications; for instance, evaluation of management, management planning, and implementation. The C&I in this document are organised along two axes: a vertical axis that structures C&I into the hierarchical levels of principles, criteria, indicators, and verifiers, and a horizontal axis that divides C&I into four areas of concern, namely policy, ecology, social aspects, and the production of goods and services. An extensive glossary of key terms related to C&I is provided as well as a comprehensive reference and further reading section.

- Clayoquot Sound Scientific Panel. (1995). *Report 3: First Nations' perspectives relating to forest practices standards in Clayoquot Sound*. Victoria, Canada: Queen's Printer for British Columbia.

This report summarises the findings of the Scientific Panel for Sustainable Forest Practices in Clayoquot Sound; in particular, it addresses the extent to which First Nations' knowledge and interests are considered in conventional forest management standards, and recommends requirements for new, inclusive forest practices. The extensive traditional knowledge base of the Nuu-Chah-Nulth Nation is explored. For instance, two Nuu-Chah-Nulth forest use concepts are described: *hishukish ts'awalk* and *hahuulhi*. The former concept, "everything is one", embodies the Nuu-Chah-Nulth belief in the sacredness of all life and their respectful approach to resource stewardship. The latter concept describes the Nuu-Chah-Nulth system of hereditary ownership and control of traditional territories. Traditional resource use and hereditary land ownership in Clayoquot Sound provide a basis for Nuu-Chah-Nulth participation in co-management of the region. Despite their long history of use and management, current forest practice standards in Clayoquot Sound demonstrate little recognition of Nuu-Chah-Nulth values and perspectives (e.g., only cursory provisions for cultural heritage sites). In essence, industrial forestry has excluded Nuu-Chah-Nulth from meaningful participation in

managing the resources of their traditional territory. Bound to Clayoquot Sound's forests and waters, Nuu-Chah-Nulth history, culture, and spirituality are critical components of Nuu-Chah-Nulth well being. Consequently, explicit guidelines for forest management, which ensure the involvement of First Nations and the incorporation of their worldview, knowledge, and management approaches, are elaborated. These new forest management standards consist of 27 recommendations and encompass several themes, including the incorporation of traditional knowledge into environmental planning, inventorying, monitoring, and research; co-management; consultation; restoration; education and training; cultural values; "low-risk" forestry practices; traditional land use; and sustainable ecosystem management. Appendices to this report contain inventories of culturally important plants, animals, and cultural areas.

- Curran, D. & M'Gonigle, M. (1998). *Aboriginal forestry: Community management as opportunity and imperative*. Victoria, Canada: Faculty of Law and School of Environmental Studies, University of Victoria.

The potential of Aboriginal forestry initiatives to blend traditional values with timber extraction in some form of sustainable forestry are evaluated in this report. The historical and legal influences defining Aboriginal peoples' relationship to traditional lands and resources in Canada are overviewed, including the legal definition of Aboriginal rights, legislative reform, policies and programs, and treaty negotiations. Aboriginal rights and forestry in the United States are also examined. The paper focuses on Aboriginal forestry under Crown tenures and through proposed treaty settlements. The suitability and effectiveness of contracts, joint ventures, crown tenures, and model forests are evaluated. The authors find that these "forests as timber production" models pose numerous problems for First Nations, limit benefits to Aboriginal people, and curtail Aboriginal rights. Problems relate to impacts on cultural resources and traditional economic activities; marginalisation of traditional tenure systems; subversion of non-timber values,

particularly non-economic ones such as berry picking and gathering for basketry; and ignoring ecological concerns such as water quality, habitat, soils, and aesthetics. Curran and M'Gonigle report that many First Nations struggle to reconcile traditional forest values and uses with the reality of industrial tenures, volume production, and business objectives. A second Aboriginal forestry model, community-controlled forestry, is examined as a culturally and environmentally appropriate alternative. Co-management of traditional lands, management of Reserve lands, and treaties are discussed as new vehicles for Aboriginal forestry. Co-management is defined as joint decision-making that reflects government-to-government relationships but is not a self-government substitute. Examples from the Gitxsan/Wet'suwet'en Nations and the Nuu-Chah-Nulth are provided. The authors advocate an ecosystem-based approach to Aboriginal forest tenure, which is compatible with traditional tenure systems and mirrors the *sui generis* principles of Aboriginal title.

- Feit, H. (1988). Self-management and state-management: Forms of knowing and managing northern wildlife. In. M.M.R. Freeman & L.N. Carbyn (Eds.), *Traditional knowledge and renewable resource management in northern regions* (pp. 72-91). Edmonton, Canada: Canadian Circumpolar Institute and the University of Alberta.

Feit explores the similarities and difference between state and local level management of northern wildlife and presents suggestions for their mutual development. Feit presents a powerful argument for the continuity and efficacy of Aboriginal management systems. These structures are characterised by a high degree of order, social regulation of resource user behaviour and effort, a conservation ethic, enforcement measures, and mechanisms for access and allocation decision-making. His discussion provides excellent criteria for evaluating the success of state approaches to management and conservation. This article elaborates on the mutual interdependency of the two management systems in our

contemporary world of increasing population, political, ecological, and economic pressures.

- Freeman, M.M.R. (1989). The Alaska Eskimo Whaling Commission: Successful co-management under extreme conditions. In. E. Pinkerton (Ed.), *Cooperative management of local fisheries: New directions for improved management and community development* (pp. 137-153). Vancouver, Canada: University of British Columbia Press.

This article examines Alaska's whaling co-management process in terms of its diverse participants - traditional hunters and scientific managers. The author argues for the recognition of traditional knowledge and management systems as viable and functional. Freeman shows that despite superficial differences, all human systems of knowledge are formed by similar processes, incorporate considerable information, and warrant thoughtful study and practical respect. This case study advances three essential features of successful whale co-management: the imposition of an international moratorium on resource use; participants, both users and government officials, that are localised; and resource users who are responsible for implementing and enforcing the co-management agreement.

- Hauck, M. & Sowman, M. (2001). Coastal and fisheries co-management in South Africa: An overview and analysis. *Marine Policy, 25,* 173-185.

In post-Apartheid South Africa new forms of user-informed resource management regimes are being created. Hauck and Sowman review 12 initiatives in co-management of coastal and fisheries resources, which they note are in their infancy. Key findings are grouped under ten categories. Securing clear rights (though not necessarily ownership) to resources is fundamental for success in co-management, in that it encouraged incentives for users to manage the resources sustainably. Success requires support from the government’s relevant departments.

In the case of South Africa, with its past history of repression, capacity building is key to empowering resource users to participate in management regimes. At the same time, local systems of accountability must be established, to avoid a local elite from expropriating the process. The authors identify clear, coherent and mutually understood objectives as critical to the success of co-management. Also, economic alternatives – or, as the authors note, a "holistic strategy for economic development" (181) — are also crucial in situations where co-management may involve decisions to protect resources, and thus cut back on local ability to meet economic needs. Enforcement must be seen as legitimate for co-management situations to function. A common weakness of co-management regimes is insufficient resources and unreasonable timeframes; limited success due to these can undermine the future of such regimes. Potentially related to this is the benefit of having a 'long term champion', either in the community or beyond it (e.g. an NGO). Monitoring and evaluation of co-management regimes is crucial to their long-term effectiveness, facilitating identification of management traits that cope well with change. The authors conclude that co-management regimes evolve over time; time (as well as resource) requirements for their operationalisation must be realised and government commitment is critical to their success.

- Hawkes, S.L.E. (1995). *Co-management and protected areas in Canada: The case of Gwaii Haanas*. Unpublished Master's thesis, Simon Fraser University, School of Resource and Environmental Management, Vancouver, British Columbia, Canada.

An excellent synthesis and review of literature on the management of common property resources, the rationale underlying co-management institutions, unresolved issues in co-management, and the co-management of Canadian protected areas are presented in this thesis. Hawkes develops a set of ten criteria to evaluate the likely success of the Canada-Gwaii Haanas Agreement, the most far-reaching co-management arrangement in Canada to date. The principles for

success she establishes include: formal, long-term commitment; clear boundaries; ecological and cultural protection; community economic development; shared monitoring and enforcement; shared information; conflict resolution; inclusiveness and linkages; flexibility and responsiveness; and, continuity and dedication. These principles could be useful in evaluating the strengths and weakness of joint forest management arrangements.

- Hawkes, S.L.E. (1996). The Gwaii Haanas Agreement: From conflict to co-operation. *Environments, 23*(2), 87-100.

Noting that the Gwaii Haanas Agreement is one of the most comprehensive co-management agreements in Canada, Hawkes proposes to assess the Agreement as a means of conflict resolution over land use. This article provides a succinct overview of Hawkes' thesis findings (above). The Gwaii Haanas Agreement guides co-management of the Gwaii Haanas (South Moresby) National Park, on Haida Gwaii (Queen Charlotte Islands), and involves the Haida Nation and the Parks Canada. Hawkes offers a set of seven criteria by which this and any protected area co-management agreement can be evaluated: ecological and cultural protection; shared information; clearly defined boundaries; enforcement; community economic development; flexibility and responsiveness; and a conflict resolution system. She then outlines nine components of good decision-making processes, which could inform the last criterion (the conflict resolution system): incentive; stakeholder involvement; government involvement; accepted process rules; time limits; full mandate; government commitment; fallback; and 'loopback' (encouraging stakeholders to resolve related issues, when the central issue is no longer being resolved). Hawkes discusses to what extent the Gwaii Haanas Agreement meets each criterion and components of a good decision making process, and concludes that it wholly or partially fulfils 10 of the criteria/components. She notes the difficulty of meeting the remaining six, due to the cross-cultural nature of the Agreement, and an underlying dispute regarding sovereignty. While time limits are

not established, perhaps for cultural reasons, the Agreement also does not set out clear provisions for enforcement or 'fallback' mechanisms for situations in which the two parties fail to come to a consensual decision. No final authority was established, due to the contested nature of sovereignty over the area between Canada and the Haida. Hawkes concludes that the Agreement emphasises areas of potential compatibility, while respecting areas of jurisdictional contention that cannot yet be resolved.

- Hood, S., Rasaily, L., & Timila, G.S. (1997). Community forestry: A program or a process? The interface between users and government. In Victor, M. (Ed.), *Community forestry at a crossroads: Reflection and future directions in the development of community forestry* (pp. 165-174). Proceedings of an International Seminar, Bangkok, July 17-19. Bangkok, Thailand: RECOFTC Report No. 16. Source: http://www.recoftc.org/documents/Inter_Reps/Crossroads/NUKCFP.pdf

Although approaches to community forestry are frequently viewed in terms of activities and programs, this case study from Nepal demonstrates that an approach emphasising process achieves significant results. Process is defined as a natural progression or series of changes in activities and approaches. This paper focuses on institution building and, in particular, information flow within and between stakeholders. An analysis of the interface between users and various levels of government is undertaken to explicate problems in implementing community forestry in Nepal. Existing routes of information flow are examined at three boundaries: central government-District Forest Offices; District Forest Offices-Range Posts; and, Range Posts-forest user groups. Information flow support mechanisms are identified for each interface. The potential of gender and equity sensitisation and networking to address current obstacles in information flow is addressed. In Nepal, participation of women and the poor in community forestry was found to be lacking. Activities undertaken to redress this shortcoming include:

gender and equity workshops for district forest staff, women forest user workshops, training events, orientation for staff, and literacy development. Issues related to networking were attended to by holding trimesterly meetings at the Range Post level. As a networking forum, these meetings facilitated information sharing, issue resolution, staff linkages, monitoring and evaluation, planning, concept clarification, and institutionalising change. Several outstanding networking issues were identified, namely meeting facilitation, behavioural change, effective representatives, manager commitment and vision, and process ownership. The authors describe improvements to information flow undergone in the Nepalese case, implications of these changes for information flow, and persistent problems. A series of lessons for effective community forestry are advanced at the conclusion of the article.

- Hunt, L. & Haider, W. (2001). Fair and effective decision-making in forest management planning. *Society and Natural Resources, 14,* 873-887.

A fair and effective decision-making process for forest management planning is increasingly a legal requirement in Canada. The literature suggests that effective public involvement is integral to fair and effective decision-making and that, by increasing public involvement, decision-making processes and outcomes will be perceived as fairer and as more effective, contributing to sustainable development. However, little empirical work has validated these hypotheses; thus, the authors undertake to examine these linkages and relationships. In this research, the social psychological paradigm of procedural fairness is applied to forest management planning decision-making in Ontario. Whether greater levels of involvement by resource-based tourism operators in a forest management planning process influences their evaluation of this process and its outcomes is examined. A review of previous work on fairness and decision-making is provided. The authors define fairness; distinguish between procedural and distributive fairness; and describe the fair process effect, the frustration effect, and process control. Questionnaires were

mailed to all Northern Ontario Tourist Outfitters Association members; aggregated results and results segmented by operator establishment accessibility are reported. Eight different forms of involvement were identified and arranged along a continuum of tourism operator involvement. Research showed that operators with remote establishments were most involved in forest management planning. No significant relationships were found between involvement level and operator satisfaction with forest policies and practices, between involvement level and operator satisfaction with the ability of the process to address her/his concerns, or between involvement level and operators' evaluation of the efficiency, effectiveness, or equity of the planning process and outcomes. Thus, the results do not support a fair process effect for resource-based tourism operators and forest planning management in Ontario. These findings may have relevance for Aboriginal community involvement in joint forest management.

- Inden, P. (1996). *Forestry - A means to an end for First Nations: A focus on Tl'azt'en Nation*. Undergraduate thesis, University of British Columbia, Faculty of Forestry, Vancouver, British Columbia, Canada.

Inden overviews Tl'azt'en history from the earliest archaeological evidence of occupation to the post-contact era. He explains pre-contact allocation of resource use rights, resource distribution, trading, class and family structure, cultural influences, spirituality, and housing. He discusses the early contact period and the subsequent adaptations of Tl'azt'enne to the new socio-economic realities of the region (e.g., the fur trade with the Hudson's Bay Company). Inden provides a timeline detailing the introduction of Western religion, the first influx of non-natives, the decline of First Nation populations due to contagious diseases, completion of the railroad, and the introduction of a wage labour economy and seasonal forestry operations. The Tl'azt'en labour force was important in this new regional economy, but their participation declined from the 1950s onward. Fewer, larger forest companies, with unions and a large non-native labour pool gradually

displaced seasonal Aboriginal workers. The thesis outlines the history of the establishment and management of Tree Farm License (TFL) 42. The Tl'azt'en Nation applied for a TFL in 1960; this first attempt was unsuccessful and, as a result, community socio-economics suffered. However, in 1982, as part of negotiations with British Columbia Railroad and the provincial government, they applied again for a TFL and were successful. Inden's thesis provides details related to the Tl'azt'en experience of creating and managing the largest Aboriginal owned and operated TFL in BC. He explores the successes (e.g., employment creation, meaningful involvement in natural resource management, and enhanced community well-being) and failures (e.g., application of commercial forest practice standards that conflict with traditional land uses and values) of Tanizul Timber as an experiment in social forestry.

- Jentoft, S., McCay, B.J., & Wilson, D.C. (1998). Social theory and fisheries co-management. *Marine Policy 22*(4-5), 423-436.

There exist both great hope and serious doubt about the general applicability of co-management arrangements to fisheries management. Co-management is defined as a collaborative and participatory process of regulatory decision-making among representatives of user-groups, government, and research institutions; a system of interactive governance and co-operative democracy; and, a system of decentralised, autonomous decision-making through direct participation or representation. Co-management can be formal or informal, and involves renewed commitment to 'meso-level' government, involving civil society and voluntary associations. The authors suggest that, although some criticisms of co-management are valid, many negative predictions reflect restricted views on social theory and the role and nature of institutions. Several alternative, positive perspectives on the prospects and outcomes of co-management arrangements are described using embeddedness theory. In the authors' view, implementation of the following principles will be critical in determining the success or failure of co-management:

- the sustenance of local communities, empowerment of users, and participatory democracy are important resource management goals;
- communities contain untapped human and capital resources;
- public policy should provide the necessary conditions to keep communities sustainable and self-sufficient;
- selflessness, solidarity, shared identity, and aspirations are basic traits of individuals and groups;
- resource use choices are not only made with individual gain in mind, but also by considering the fulfilment of social obligations, cultural conventions, and enactment of routines;
- the cultural and social qualities of human communities are assets, which resource managers can draw upon and reinforce, thereby promoting social integration and community vitalisation;
- co-management partners must operate in an ongoing collaborative, communicative, entrepreneurial, and creative manner; and
- when users obtain more functional management responsibility, they will behave more responsibly and morally.

Four important institutional variables are also defined, namely the definition of a community, the locus and scale of community, how community interests are represented, and property rights. The authors conclude that many of the criticisms of co-management are premature; they view co-management as a dynamic, evolving process. They recommend testing the criticisms and negative propositions about co-management through bold management initiatives.

- Karjala, M.K. (2001). *Integrating Aboriginal values into strategic-level forest planning on the John Prince Research Forest, Central Interior, British Columbia*. Unpublished Master's thesis, Ecosystem Science and Management Program, University of Northern BC, Prince George, British Columbia, Canada.

Defining and implementing sustainable forest management has frustrated the efforts of managers, policy makers, and Aboriginal communities. This thesis aims to address prominent challenges surrounding Aboriginal participation in forest management decision-making. An analytical, scenario planning approach is applied to the co-managed John Prince Research Forest. The thesis reports on the development of a procedure to elicit, translate, and incorporate local Aboriginal values, uses, and knowledge into planning. The Aboriginal Forest Planning Process generates forest management criteria and indicators from community archival information and involves three steps - summarisation, compilation, and categorisation - and produces spatial, quantitative, and qualitative criteria and indicators. Four criteria themes and eighteen sub-themes were identified, but few measurable indicators were documented. From this information, scenarios, representing five possible riparian management strategies, were developed to reflect community concerns. An analytical forest planning tool was applied to demonstrate the utility of community indicators in trade-off analyses and scenario comparisons. Four major conclusions arise from this research. The AFPP is an effective participatory tool to translate Aboriginal forest values, uses, and knowledge into criteria and indicators. Community level criteria and indicators are readily identified from secondary information. Criteria and indicators facilitate the communication of culturally and locally unique perspectives on sustainable forest management. Communication between Aboriginal resource users and technical managers is facilitated by suitable analytical forest planning tools. This research also demonstrated that Aboriginal perceptions of appropriate forest stewardship are well aligned with scientific perspectives on sustainable forestry.

- Klooster, D. (2000). Institutional choice, community, and struggle: A case study of forest co-management in Mexico. *World Development, 28*(1), 1-20.

Klooster seeks to advance our understanding of change in common property management systems, through a study of eight forestry communities in Mexico, a

country in which 80% of the forests are held under common property arrangements. In seven of the communities studied, benefits from logging have been distributed fairly, and the forest itself has been stewarded. In one, a forestry elite has usurped and mismanaged the forest commons, and forestry practices have led to environmental degradation. Noting that institutional choice is a major theoretical approach to examining under what circumstances commons management can be successful, Klooster applies it to his cases, and finds it wanting. He identifies its focus on rational choice of individuals as 'thin' and notes the need to understand institutions in some cases as more than just rules, as "complex social constructions with cultural content and meaning" (17). A 'thicker' comprehension of institutions facilitates a better understanding of people's motivations regarding commons, underscoring both the role of morality and of community norms. It also helps to explain instances of collective action, where rational choice fails to do so.

- Kosek, J. (1993). Ethics, economics, and ecosystems: Can British Columbia's indigenous people blend the economic potential of forest resources with traditional philosophies? *Cultural Survival Quarterly, 17*(1), 19-23.

This article consists of three interviews with Aboriginal leaders concerning current industrial approaches to forest management and the benefits Aboriginal communities derive from the forest industry. Simon Lucas and Richard Leo are interviewed; these hereditary Nuu-Chah-Nulth chiefs relate their experiences with industrial scale logging of old growth forest and their desire for resource management that meaningfully includes First Nations. In the third interview, Ed John, Grand Chief of Tl'azt'en Nation and president of Tanizul Timber, discusses the Tl'azt'en search for balance between ethical principles and economics. Kosek identifies several common themes within the interviews. He speculates whether any forest industry can meet Aboriginal economic needs, while allowing indigenous people to maintain their ethical standards and spiritual ties to the land. The author identifies problems with existing forest practices and policies, namely that forest

harvesting and protection measures do not accommodate Aboriginal philosophies. He insists that Canada's First Nations, in seeking to maintain their autonomy and identity, need to control natural resources on their traditional lands. The need for treaties is discussed and the potential ramifications of these settlements for the forest industry are outlined.

- Krogman, N. & Beckley, T. (2002). Corporate bail-outs and local buyouts: Pathways to community forestry? *Society and Natural Resources, 15,* 109-127.

Two Canadian newsprint mills in Pine Falls, Manitoba and Kapuskasing, Ontario, formerly owned by large corporations, were purchased through employee and employee/management buyouts in the early 1990s, effectively establishing local control and decision-making over mill and forestry operations. This paper examines whether these locally owned mills and forest tenures constitute community forests according to the criteria for community forestry presented in the literature. Definitions of community forests and community forestry are reviewed: the authors assert that these terms are applied loosely and refer to a broad spectrum of conditions and institutions (e.g., school forests, urban forests, municipally owned forests, forest co-operatives, model forests, etc.). Three key components identified in the literature on community forestry are local control (locus of decision-making), greater environmental stewardship (increased commitment to ecological health and sustainability), and local benefit (provision of benefits to the local community). A control/benefit continuum in forest management is described with no local control or benefit at one end of the spectrum and total community control and capture of all forest management benefits at the other. The authors distinguish between community forestry (a situation whereby community benefits are enhanced relative to status quo, industrial forest management through the progressive policies of external agents) and community forests (a situation whereby communities achieve greater local benefits through institutional reform). The authors review the literature on employee and management buyouts, describe the

circumstances of the Manitoba and Ontario mill/forestry operations, and present their analysis of qualitative interview data from both cases. Several important findings arise from this research. Worker and community involvement in management decision making did not increase substantially after the buyouts. While local ownership increased local control and governance within the mill and the community, it did not result in complete local control (e.g., outside investors owned a substantial portion of company shares). For example, mill management did not consult with the community on investments, forest management decisions, employee management, or corporate strategic directions. In neither case did local buyouts result in increased forest management for multiple values or long-term ecosystem health. Any management shifts were simply the result of changes in provincial forest regulations, rather than heightened environmental concern. Both cases fulfilled the community forestry criteria of increasing the transfer of local benefit through local revenue generation, capital reinvestment, and employment; for instance purchasing mill materials locally, contracting locally, or increased hiring of Aboriginal residents. The evidence presented in this paper suggests that employee/management buyouts poorly fulfil the criteria for community forestry. The criteria of greater local input, more ecologically responsible forest management, and greater community benefits were only partially satisfied. The stringent criterion of institutional reform required to designate these cases as community forests was not realised. Several future research directions are suggested: investigation of new financing mechanisms, new forms of community tenure, and alternative models for local ownership.

- Kruse, J., Klein, D., Braund, S., Moorehead, L., & Simeone, B. (1998). Co-management of natural resources: A comparison of two caribou management systems. *Human Organization, 57*(4), 447-458.

This paper compares two caribou management systems in Alaska and Canada by examining the relationship between resource user involvement and management

effectiveness. The authors hypothesise that involvement of users in a Canadian joint management board (Beverly and Qamanirjuaq Caribou Management Board (BQCMB)) would produce greater co-operation and agreement than in the Alaskan case (state management of the Western Arctic Caribou Herd). Management effectiveness measures used in this study with relevance to other joint management regimes include: knowledge of the management system, agreement on acceptable harvest and herd monitoring practices, shared beliefs about caribou population changes (e.g., herd size and distribution), perceptions of communications between managers and caribou users, and expectations of co-operation of users with management actions. The authors conclude that the presence of users on the BQCMB has influenced how biologists approach management objectives; government managers are more sensitive and responsive to user concerns. Results also show that the BQCMB is an effective way for users to bring concerns to management. However, direct involvement of traditional users in the BQCMB does not increase the likelihood that users will co-operate with management decisions. The potential benefits of both a joint user-manager board (BQCMB) and of frequent and repeated visits by biologists to user communities (WACH) are reviewed. The authors conclude that, when coupled with a joint user-manager board, an increased management presence in communities will heighten management effectiveness.

- Lane, M. B. (2001). Affirming new directions in planning theory: Co-management of protected areas. *Society and Natural Resources, 14,* 657-671.

Co-management, a new process that emphasises decentralised decision-making, active participation by citizens, and shared responsibility for problems and solutions, is the focus of this article. Two core planning theories are examined: biocentric approaches to conservation, which concentrate on biodiversity at the expense of cultural and social diversity, and anthropocentric approaches, which value biodiversity according to its social utility and result in conservation strategies

that integrate social and cultural values. Lane traces the evolution of planning practice from centralisation to decentralisation. The latter has resulted in increasing social participation, learning about the perceptions and concerns of others, and sharing of responsibility for planning outcomes. Two models of co-management are reviewed: the Yellowstone model and the Kakadu National Park model. Four essential elements of protected area co-management are revealed from the Kakadu case: the land is owned by traditional Aboriginal custodians as inalienable freehold title; the land is leased by the Aboriginal owners to the government to be managed as a National Park; the lessors receive an annual rent from the Commonwealth; and the Aboriginal owners constitute a majority on the Board of Management. Although there are concerns with indigenous capacity to manage the park and with marginalisation of indigenous decision making approaches, the co-management arrangement continues to meet conservation objectives and the park is a significant property in Australia's World Heritage estate. Benefits of protected area co-management identified in this paper include reduction of negative social and cultural conflict, enhancement of resource management functions, collaboration among local stakeholders and conservation planners, and equitable distribution of economic and social benefits.

- Laverack, G. (2001). An identification and interpretation of the organisational aspects of community empowerment. *Community Development Journal, 36*(2), 134-145.

Noting that community empowerment is a key factor in community development, Laverack reviews 44 studies of programs whose goal was to foster community empowerment. Through this literature review, he identifies nine organisational 'domains' for such empowerment. This article reviews each of the domains in turn: participation, leadership, organisational structures, problem assessment; resource mobilisation; asking 'why'; links with other people and organisations; the role of outside agents; and program management. It cautions that both positional leaders

and reputational leaders may be important to community capacity; that intra-community problem assessment may be critical to involving the community in problem resolution; that communities must have the aim and capacities to mobilise resources; and that critical awareness of the underlying causes of community dis-empowerment is crucial. Laverack notes that while these 'domains' are important for empowerment, we do not yet understand if some are more important than others, if all are necessary for empowerment in a given situation, if all can be equally supported by outside agents, and how the domains are interconnected.

- Lewis, M. & Hatton, W.J. (1992). *Aboriginal joint ventures: Negotiating successful partnerships*. Vancouver, Canada: Centre for Community Enterprise and the Westcoast Development Group.

This manual explores joint ventures as an important community economic development (CED) strategy for Aboriginal communities. It is oriented to First Nations who want to capture a share of development benefits, while protecting cultural and environmental values and negotiating land claims. Joint ventures are defined as a business technology or business style that generates from scare resources the greatest possible impact on a local economy. Joint ventures are examined as an arrangement that puts community interests at the centre of the development process and allows groups lacking specific capacities (e.g., capital, human resources, or infrastructure) to contribute to and benefit from development projects. The context for CED in Aboriginal communities is reviewed, including essential elements of CED, models of CED, and the benefits of joint ventures. The majority of the book comprises a practical guide to planning and negotiating joint ventures using a five-stage process: preparing, establishing the agenda, negotiating and signing a Heads of Agreement, structuring and negotiating a Shareholders Agreement, and structuring and signing a Management Agreement. The authors conclude that joint ventures are an important strategy for maximising benefits while

reducing risk and are a strategic business approach that can advance Aboriginal interests in building self-reliant communities.

- Long Beach Model Forest Network. (1996). *Discovering Long Beach Model Forest: Where environments and communities meet*. Ucluelet, Canada: Long Beach Model Forest Society.

This report introduces the history, communities and marine/forest environment of the Long Beach Model Forest (LBMF) region and overviews the programs supported by the Long Beach Model Forest Society. It is one of ten Model Forests in Canada and encompasses Clayoquot Sound and a portion of Barkley Sound. The LBMF is described as a partnership between Nuu-Chah-Nulth and non-Aboriginal communities designed to achieve sustainable forest co-management. Model Forest Operations are guided by a Board of Directors, which consists of 14 elected directors and 14 alternates from several sectors, including federal government, provincial government, local government, First Nations, conservation science, social and economic sustainability, youth, secondary industry, fisheries, recreation, labour, tourism, major manufacturers, and education. The report details Nuu-Chah-Nulth aspirations and requirements for sustainable forest co-management within the 400000 ha LBMF. It describes LBMF partnerships and projects involving local First Nations. These include endeavours related to cultural values (e.g., instruction in traditional harvesting, preparation, weaving, and construction using cedar tree bark), ecological research and restoration (e.g., a symposium on the links between traditional ecological knowledge and scientific knowledge), resource mapping for communities (e.g., traditional land use mapping), demonstration and interpretation (e.g., rainforest interpretive centre and associated cultural programs), youth (e.g., Nuu-Chah-Nulth youth science camps focused on traditional knowledge), and public information related to sustainability (e.g., workshops to promote cross-cultural understanding between groups and individuals). The report describes the LBMF's philosophies of shared decision-making, community

involvement, cultural empowerment, and community sustainability. Qualities that make the LBMF a successful co-management endeavour, such as the development of respect and appreciation between cultures, are outlined.

- Michel, H., Dickie, A., & Hollstedt, C. (2002). Natural resource information needs of Aboriginal communities in the Southern Interior of British Columbia. *BC Journal of Ecosystems and Management, 2*(1), 1-11.

In 1999/2000 an information needs assessment for First Nation communities in three regions of the southern interior of British Columbia was conducted by FORREX (Forest Research Extension Partnership). The intent of this assessment was to develop extension strategies to assist First Nations in resolving gaps in human, technology, and other resources that hinder their participation in natural resource management. Three regional focus groups, utilising brainstorming/consensus-building techniques, were conducted in the Thompson-Okanagan, Cariboo-Chilcotin, and Kootenay regions of British Columbia to identify information needs, to determine which needs would most likely be addressed using sources outside the community, and to prioritise those needs. A follow-up meeting with participants was used to synthesise the information derived from focus groups. First Nations identified wide-ranging areas of needs including:

- information related to protecting land and resources;
- access to technological resources;
- continued use of First Nations' expertise to conduct research;
- access to government and industry information;
- more government and alternative funding sources;
- the development of infrastructure to manage resources and interests;
- training in entrepreneurial business practices and long-term employment;
- more education at the community level concerning land and resource related information, and sharing indigenous knowledge and wisdom with non-aboriginal parties;

- more involvement in decision-making at all levels of government and by industry; and
- recognition of Aboriginal rights and title.

Several challenges or issues in providing forestry extension services to First Nations were identified. These include: the dire lack of technological, human and financial capacity within Aboriginal communities; the lack of local benefits from resource extraction in traditional territories; the significant amount of money and time associated with asserting Aboriginal rights; and the need to identify how best for extension groups, such as FORREX, to communicate with Aboriginal groups (especially in light of the fact that tribal councils do not represent all Aboriginal communities). Out of this needs assessment process, the authors developed a *Framework for Action*, which involves an information exchange forum and an Aboriginal Forestry Extension Program (an extension and information link between Aboriginal communities and the scientists, and between resource users and government regulatory agencies). The article outlines the objectives, goals, and guidelines for this information exchange process.

- Michel, H., & Gayton, D. (2002). Linking Indigenous peoples' knowledge and Western science in natural resource management: A dialogue. *B.C. Journal of Ecosystems and Management, 2*(2), 1-12.

This article comprises an interview conducted with Henry Michel, a First Nation knowledge keeper, and Don Gayton, a western scientist specialising in ecosystem management. Both of these individuals view linking indigenous knowledge with science as crucial to forestry and natural resources management in British Columbia. The article explores prospects for linking these two knowledge systems. Highlights of the dialogue include a presentation on the philosophies from each knowledge system, an exploration of the similarities and differences between them, and suggested guidelines or principles which should be respected in any

practical attempts to link the two knowledge systems in natural resource management. Michel and Gayton's discussion highlights a crucial difference between the two systems: indigenous peoples' knowledge (IPK) is considered to be holistic, whereas western science tends to break knowledge into smaller components examining one variable at a time. However, Michel argues that the potential for integration is greater than ever before because science is adopting ecosystem-based approaches. In addition, participatory research projects, which allow communities to be an integral part of a project from the development of a concept to on-the-ground implementation and analyses, promote integration and cross-cultural learning. Other elements important in the integration of indigenous knowledge with western science include the establishment of community-directed research as the norm rather than the exception, and the integration of indigenous knowledge fairly into resource management, not as an esoteric subset of western knowledge.

- Montagu, A.S. (2001). Reforming forest planning and management in Papua New Guinea, 1991-94: Losing people in the process. *Journal of Environmental Planning and Management, 44*(5), 649-662.

To reduce corruption and to promote sustainable development of forest resources, forest planning and management in Papua New Guinea (PNG) underwent exceptional reform throughout the 1990s. The impetus for and outcomes of this reform are evaluated by the author in light of PNG's unique land tenure system. Ninety-seven percent of PNG is under the ownership of indigenous peoples with 84% of the population maintaining a subsistence lifestyle, yet indigenous landowners are excluded from forest planning and management. The paper begins with a description of the land tenure system in PNG followed by a review of the historical factors promoting forest reform. Montagu assesses key structural and procedural reforms to determine whether or not the inequitable treatment of indigenous people was addressed. Three specific outcomes of the reform process are

examined: changes in forest policy, changes in the organisational and decision-making structures controlling forest planning and management, and changes in the staging and sequencing of forest management. His assessment suggests that PNG forestry was not redirected towards traditional village communities, their needs, or their management approaches. The author concludes that reforms focus entirely on issues of efficiency and accountability in the actions of the state and promote an environment to maintain and expand the timber industry. Reforms failed to ameliorate the mismatch between PNG's forestry model and its customary land tenure system. The systematic biases of PNG's new forest policy and the continued negative impacts of forest policy on traditional landowners are explored. For instance, reforms do not account for issues of indigenous development and self-determination, exclude landowners from participating in decision-making, and create a centralised and top-down forestry system.

- Moores, L., & Duinker, P.N. (1998). Forest planning in Newfoundland: Recent progress with public participation. *Forestry Chronicle, 74*(6), 871-873.

This paper focuses on forest planning in Newfoundland by describing the history of adaptive ecosystem management in the province and the public participation process designed to implement this new planning framework. Eighteen planning teams, comprised of government resource managers, non-governmental organisations, and local citizen advisory groups, were established to prepare forest ecosystem strategy documents and five year operating plans for each forest district. The authors report on the results of a three-day workshop organised to evaluate the planning process with particular emphasis on the effectiveness of stakeholder participation. A useful evaluation workshop methodology is described and the strengths and weaknesses of the planning team approach are outlined. The remainder of the article describes solutions and short-term actions to address process weaknesses related to the commitment of government to the planning process, communication, education, funding, authority, and monitoring. These

problems and solutions can inform the theory and practice of other alternative forest management arrangements.

- Morel, S. & Belanger, L. (1998). An integrated wildlife/forest management model: Accommodating traditional Innu activities and forest management practices. *Forestry Chronicle, 74*(3), 363-366.

This paper examines the challenge of merging cultural practices with forest development opportunities to ensure harmonious cohabitation of the Innu Nation with Quebeckers. Economic development based on natural resources is an important element of Innu community development, yet past forest practices have disrupted Innu land use. A management model (the Integrated Wildlife/Forest Management Model) is presented as a solution to ensure the co-existence of forest management and traditional activities, specifically hunting, trapping, fishing, and gathering on controlled harvesting zones, outfitter territories, and wildlife reserves. The management model consists of four main principles: practices need to preserve or improve the quality of wildlife habitat over the entire Innu territory, practices must preserve the integrity of areas used by Innu, decision-making must be consensus-based, and integrated practices should be encouraged. The authors conclude that integrated forest management is essential to reconcile Aboriginal use and occupancy with forestry activities, to achieve sustainable development, and to respect the original occupants of the land.

- Morgan, J. P. (1993). *Co-operative management of wildlife in northern Canadian national parks*. Unpublished Master's thesis, University of Calgary, Faculty of Environmental Design, Calgary, Alberta, Canada.

This thesis evaluates wildlife co-management systems in National Parks or National Park Reserve in the Canadian North, including Kluane, Nahanni, Auyuittuq, and Ellesmere Island National Park Reserves as well as Ivvavik and Wood Buffalo

National Parks. Morgan establishes a set of desirable attributes related to co-management structures, operations, and involved individuals. The author critically applies these criteria to evaluate each of the above mentioned regimes. His analysis produces recommendations to shift each arrangement towards more effective, equitable, and enduring co-management processes. From these findings, Morgan generates an idealised co-management model to be applied to a diversity of state-Aboriginal partnerships.

- Morris, P.K. (1999). *Negotiating the production of space in Tl'azt'en Territory, 1969-1984.* Master's thesis, University of Northern British Columbia, Geography Department, Prince George, British Columbia, Canada.

This thesis focuses on Aboriginal peoples' role in the production of space on traditional lands. It examines pre- and post-contact Aboriginal spatiality and its affect on the social and legal spaces of northern British Columbia. Morris describes the pre-contact Tl'azt'en social and political landscape and the effects of Euro-Canadian visualisation, administration, and use of land on this spatiality. The incursion of non-native settlement and development into Tl'azt'en traditional territory (e.g., fur trade, Omenica gold rush, and industrial forestry) and the attendant effects on Tl'azt'en identity and independence are reviewed. Morris discusses the hybrid spaces resulting from the interaction of Tl'azt'en and Euro-Canadian societies; shared spaces that were influenced by the shifting balance of power between the two cultures. The production of hybrid space is examined through an in-depth study of negotiations surrounding the allocation and management of traditional Tl'azt'en lands. Tl'azt'en negotiations with the Pacific Great Eastern/British Columbia Railway and the provincial government over construction of a railway through Reserve lands are the focus of this thesis. Exertion of Indian Reserve rights and threats of blockade resulted in an agreement by which Tl'azt'en acquired thirty-five new reserves and a Tree Farm License. The new spatial organisation of the region is discussed as a reflection of the compromises, goals, and

strategies of Tl'azt'enne and the dominant society. This thesis provides an introduction to the ethnography and oral history of the Tl'azt'en Nation. Traditional Tl'azt'en forest uses, land management approaches, systems of governance, and environmental knowledge are overviewed. Tl'azt'en goals for community forestry (e.g., jobs, financial independence, and training) are outlined and the challenges in meeting community expectations (e.g., lack of capital, lack of modern equipment, and lack of management experience) are discussed.

- Nadeau, S., Shindler, B., & Kakoyannis, C. (1999). Forest communities: New frameworks for assessing sustainability. *Forestry Chronicle, 75*(5), 747-754.

This article focuses on assessing the sustainability of forests and forest communities. It traces the historical use of economic indicators as measures of community stability and reveals that the relationship between communities and forests involves broader social and institutional components. A variety of meanings attached to the concept of "community" are reviewed. Three emerging concepts - community capacity, community well being, and community resiliency - and their contributions to the assessment of forest communities - are examined. The authors conclude that these new concepts, which encompass economic, social, cultural, and institutional concerns, develop a more comprehensive understanding of the interrelationships between people and the forests in which they live and work. Continued research on these emerging frameworks is recommended to generate specific criteria and indicators for monitoring the sustainability of Canadian forest communities.

- National Aboriginal Forestry Association (2002). *Aboriginal-Forest Sector Partnerships: Lessons for Future Collaboration.* Ottawa, Canada: National Aboriginal Forestry Association. Source: www.nafaforestry.org/nafaiog/nafaiog5.php

The scope, scale and nature of Aboriginal-forest sector partnerships are examined in this report to provide lessons for companies and communities seeking collaborative relationships. Case studies describe a variety of partnership types from different regions across Canada. The first case focuses on the Gitwangak Indian Band, in central British Columbia, who created a company called C-Ged Forest Products with Westar. After this sawmill failed, C-Ged Forest Products and Interpac Forest Products formed a joint venture; however, the mill never reopened. Gitwangak's employment objectives were largely neglected. Interpac's focus on return on investment conflicted with the community's socio-economic objectives. A lack of management expertise, capital, and knowledge of the market resulted in serious financial failure. The First Nation was also challenged to maintain community interest and to keep business separate from politics.

The second case examines Little Red River Cree Nation (LRRCN) and Tallcree First Nation attempts to preserve wildlife and the environment, while creating economic opportunities that provide new means of environmentally sustainable subsistence. From the 1950s to 1970s, LRRCN worked with local mill owners, such as Swanson Lumber, in creating opportunities form community members. The mill's objectives conflicted with First Nation goals and resulted in substantial job losses. From 1970 to 1989, the LRRCN succeeded in obtaining a provincial timber quota, providing opportunities for the community to log and sell its own wood. They entered into a joint venture with a Métis logging contractor to supply fibre for this quota. In order to manage timber allocations, LRRCN formed two wholly owned corporate entities called Little Red River Forest Products Ltd. and Little Red River Askee Ltd. As a result of a variety of obstacles including the isolated location of the mill and insufficient management capacity, these ventures failed. A co-operative management agreement (CMA) was signed in 1995 and involved the two First Nations, the province of Alberta, and industry partners (High Level Forest Products and Alberta Energy Corporation). The CMA includes First Nation-government and

First Nation-industry agreements focused on ecosystem based resource management, co-operative research, and collaborative planning.

The third case involves the efforts of Woodland Cree to gain economic and social benefits from resource development activities because of the belief that a strong economic base is key to self-government. In 1993, a joint venture sawmill company, called Wapawekka Lumber, was established with Weyerhaeuser. This independent company, located near Prince Albert, began production in 1999. State-of-the-art curve saw technology permits optimal extraction of dimension lumber from small logs. At full production level, the mill employs 40 people and other jobs have been created through trucking and forest operations. The relationship between the Woodland Cree First Nation and Weyerhaeuser Canada developed slowly, starting with a low-risk engagement period before initiating a more intensive partnership arrangement. This relationship building phase was important to awareness raising, to the demonstration of Cree business savvy, and to understanding the significant challenges and stresses Woodland Cree Resources confronts in its operations.

The fourth case involves the Waswanipi Cree, who carry out forestry activities utilising two Band-owned companies and a joint venture sawmill. In 1983, Waswanipi Mishtuk Corporation was established. It is responsible for wood harvesting and road construction, while Waswanipi Apit-See-Win Co-operative was established in 1986 to carry out silvicultural contracts. Forestry activities carried out by Mishtuk and by the Apit-See-Win Co-operative provide an important source of employment for members of the Waswanipi community. By the late 1980's, community leaders wanted to expand forestry operations and to focus on forest management that supported coexistence with Cree trappers. Expansion entailed securing access to a forest management and supply contract (CAAF), a tenure requiring ownership of a sawmill. The cost to establish a mill was well beyond the financial resources of the community. The security of backers was required.

Companies were invited to bid on the partnership under the condition that they abide by specific criteria, such as willingness to provide the community with socio-economic benefits (such as jobs, training, and purchase agreements for mill by-products). Domtar was most responsive to these special needs and a protocol agreement was negotiated to establish Nabakatuk mill. Nabakatuk is an independent joint venture company held by Mishtuk Corporation and Domtar, with Mishtuk holding a 55% share. The company's Board of Directors is composed of seven members, three from Domtar and four from the community of Waswanipi. A protocol agreement was put in place to outline each partner's conditions for working together. Developing this partnership has taken many years. Issues ranged from internal community dissent about jobs versus traditional pursuits to co-ordinating financial commitments to dealing with regional Cree politics. Domtar has contributed management expertise concerning mill policy and operation, log inventory, and financial management. Mishtuk has applied its expertise in managing relations with trappers; *tallymen* are consulted prior to road construction and harvesting. This case provides many lessons, including the importance of partner selection, building the diverse needs of the partners into an agreement, the co-ordination of a carefully planned partnership, and taking a long-term perspective. The case also illustrates the important role government can play in setting out conditions for the development of effective partnerships.

- Nathan, H. (1993). Aboriginal forestry: The role of First Nations. In K. Drushka, B. Nixon, & R. Travers (Eds.), *Touch wood: BC forests at the crossroads* (pp. 137-170). Madeira Park, Canada: Harbour Publishing.

Nathan discusses the troubled nature of BC's relationships with Aboriginal people in terms of natural resource allocation and management; currently, jurisdiction over the majority of the province's forested lands is in dispute. Nathan describes the spectrum of linguistic, cultural, and landscape diversity found among BC First Nations. She characterises several themes common to the 415 Aboriginal

communities in the province (e.g., high unemployment rates, dependency on the welfare state, and dependency on the Indian Act). Many Aboriginal communities see the forest sector as a means of improving local employment and general economic conditions; however, many do not wish to participate in a forest industry dedicated to the status quo. The Intertribal Forestry Association of BC studied the outcomes of federal government management of forests on Indian Reserves and found evidence of severe mismanagement. Nathan reports that First Nations are developing their own forest management standards, which blend cultural wisdom, tradition, and a holistic outlook in meeting economic goals. The author suggests that BC First Nations, due to unresolved land claims, are in a legal position to transform the forest industry. A historical perspective on the campaign by environmentalists, the public, and international organisations to restructure BC's forest industry and to reduce cutting rates is provided. According to Nathan, BC First Nations are the only group with the legal, historical, and moral authority necessary to bring about such fundamental restructuring. She examines how greater control and involvement in the forest sector could benefit different First Nations and explores programs and partnerships BC First Nations have successfully pursued in this regard. Nathan provides valuable insights into Aboriginal perspectives on the future of forestry in BC.

- Noble, B.F. (2000). Institutional criteria for co-management. *Marine Policy, 24,* 69-77.

This article examines institutional arrangements and designs in fisheries management to generate propositions about criteria for effective co-management. In Noble's view, co-management emanates from the *Brundtland Report* and is the manifestation of the principle that communities should have greater access to and control over decisions affecting their resources, in co-operation with governmental, economic, and administrative functions. Ideally, co-management decentralises resource management decisions and improves participatory democracy and

compliance. The author suggests that co-management success depends on whether these arrangements can function as effective institutions. Institutions are defined as the entities from which collective action is taken to achieve a diversity of social, economic, political, cultural, and ecological goals. Yet, institutional factors have received superficial and summary treatment in resource management and common property research. Noble presents a vision of how institutions for commercial fisheries should be organised to promote successful co-management. Six principles are presented to facilitate and evaluate co-management. Four principles reflect process considerations (the means to effective co-management) and two principles refer to substantive values. Process considerations involve the legitimacy, functions, and decision-making of an organisation. Substantive values are the underlying management elements or institutional objectives or anticipated ends. The principles reviewed include interactive organisations, local control and ownership, community support and collaboration, a planned process, substantive diversity, and holism. The criteria advanced in this article could assist in developing more effective forest co-management institutions.

- Notzke, C. (1994). *Aboriginal peoples and natural resources in Canada*. North York, Canada: Captus University Publications.

This publication provides a broad overview of Aboriginal resource management in Canada, including fisheries, water resources, forestry, wildlife, land, non-renewable resources, protected areas, and environmental assessment. The author provides numerous case studies that illustrate the complexity and urgency of resolving Aboriginal/non-Aboriginal conflicts over resource related issues. This work demonstrates that co-management has potential to promote ecological, cultural and economic sustainability. Relationships between the two models of resource management in common use throughout Canada - Aboriginal/local systems and state systems - are defined. Conflicts arising from this duality and the mutual

interdependence of each approach are explored. This book is an important reference guide.

- Osherenko, G. (1988). Can co-management save arctic wildlife? *Environment, 30*(6), 6-13.

This paper explores two systems of wildlife management in use throughout Alaska and the Canadian North - indigenous management and state management - and the problems arising from both. Indigenous management is defined as a local or regional level system based on customary authority, traditional knowledge, and communal management principles. Unwritten rules or social norms govern Aboriginal resource use and compliance is based on cultural values, ethics and community sanctions. Key problems for the indigenous system include the erosion of traditional knowledge, the breakdown of social norms emphasising community and co-operation, and parochialism. State management is defined as a system created to allocate shares of limited resources among users based on written laws, rules, and regulations administered by governments. It is often impractical (e.g., due to lack of fluency in English, remote and widely dispersed users) and inappropriate (e.g., due to limits that do not conform to traditional needs or practices) in northern regions. The potential of co-management regimes to address indigenous and state system deficiencies is examined. Co-management is defined as an institutional arrangement covering a specific geographic area in which resource users and the state agree to a system of reciprocal rights and obligations, a collection of rules indicating appropriate actions under specific circumstances, and procedures for collective decision-making. Illustrative examples are drawn from various co-management regimes for Arctic wildlife, including Beverly-Quaminuriaq caribou in Manitoba, Saskatchewan, and the Northwest Territories; beluga whales in northern Quebec; and migratory waterfowl in the Yukon-Kuskokwim Delta, Alaska. Osherenko details the benefits of these co-management arrangements: better management and species protection, improved compliance

with hunting restrictions, an expanded role for indigenous people in decisions that profoundly affect their cultures and livelihoods, and reduced conflict among user groups. Three key ingredients for successful co-management are advanced. Real power-sharing among co-management partners is necessary at every level from research design to enforcement. A regime must gain the trust and support of indigenous communities. And a regime must eliminate cultural and linguistic barriers to indigenous people's participation.

- Pierce Colfer, C.J., Prabhu, R, & Wollenberg, E. (1995). *Principles, criteria, and indicators: Applying Ockham's Razor to the people-forestry link*. Working Paper No. 8. Jakarta, Indonesia: Centre for International Forestry Research.

Forest managers are struggling to understand how to evaluate sustainability. One of the most persistent questions relates to the 'common people's' role in sustainable management. This question has relevance to certification and eco-labelling efforts and, more broadly, to on-going attempts at unravelling human-forest interactions. This concept paper attempts to reduce the complexity of these interactions to a manageable number of principles, criteria, and indicators based on a review of the literature and field tests in Indonesia and Cote d'Ivoire. The authors define commonly used terms such as sustainability, well-being, needs, and people, revealing some of their basic assumptions. Four conceptual and policy issues, which profoundly influenced the development of their CandI set, are presented and relate to the role of people in the forest; the importance of maintaining cultural diversity; the relationships among cultural integrity, cultural change, and stakeholder participation; and, policy issues related to land use, population, and people's participation in forest management. Two principles and six criteria are identified that acknowledge the physical and economic base of human life as well as cognitive, normative, and symbolic elements. The authors consider these principles and criteria to be fundamental to human involvement in sustainable forest management. Principle one states that forest management should maintain or enhance the flow of benefits from forest resources, with access generally

perceived as just by all stakeholders. Principle two states that the voice of all stakeholders must inform forest management.

- Pinkerton, E. & Weinstein, M. (1995). *Fisheries that work: Sustainability through community-based management*. Vancouver, Canada: The David Suzuki Foundation.

Like many common property resources, fisheries are at a crossroads and small-scale community-based resource users are facing the greatest economic, ecological, cultural, and social risks. This report focuses on the failures and successes of global examples (e.g., Peru, Alaska, British Columbia, Japan, Korea, Australia, and Newfoundland) of alternative resource management models ranging from total self-management to co-management arrangements. These scenarios provide many strong predictions about what aspects of co-management work in given situations. This document addresses issues of fundamental interest to the development of sustainable forest co-management, including defining effective management, joint problem-solving between Aboriginal and non-Aboriginal communities, exercising community resource/property rights, the benefits of co-management, and conditions for ensuring co-management success.

- Pomeroy, R.S., Katon, B.M., & Harkes, I. (2001) Conditions affecting the success of fisheries co-management: Lessons from Asia. *Marine Policy, 25,* 197-208.

From a review of over 45 research projects on co-management experiences in Asia, carried out by the International Centre for Living Aquatic Resource Management and the Institute of Fisheries Management, this article specifies 18 conditions which influence the success of co-management in Asia. It groups them in three categories: supra-community level, community level, and individual/household level. Supra-community conditions for successful co-management include the presence of enabling policies and legislation and external agents who expedite the process of co-management. Community-level conditions are most numerous, and

comprise an appropriately defined scale and boundaries for co-management; clearly defined membership; participation by those affected; local leadership; capacity building and empowerment among the community members; legitimate community organisations which can represent local stakeholder desires; long-term support of local government; clear property rights to the resources being managed; adequate financial resources; a sense of ownership by all partners in the co-management process; accountability by all partners; clear conflict management mechanisms; clearly defined objectives of the process; and enforcement of management rules. The authors also hold that group homogeneity encourages the success of the co-management process, though they note substantial exceptions, where heterogeneous groups have enjoyed successful co-management. At the individual/household level, the authors identify one condition for successful co-management an individual incentive structure. That is, individuals must feel that they share benefits as well as costs, and that the rules of the regime are equitable. All these conditions must be understood in the distinct contexts (political, economic, social, cultural, technological, environmental) of each community. The authors note that their list is not comprehensive, but rather identifies those conditions they consider most important for the success of fisheries co-management in Asia. They also note that these conditions interact, as do the different parties (government, external agents, users, etc.,) in mutually supportive roles, in sustainable co-management systems.

- Prabhu, R., Colfer, C.J.P., & Dudley, R.G. (1999). *Guidelines for developing, testing, and selecting criteria and indicators for sustainable forest management: A C&I Developer's Reference*. Criteria and Indicators Toolbox Series No.1. Jakarta, Indonesia: Centre for International Forestry Research.

This manual, aimed at researchers and practitioners, provides methods to develop, evaluate, and select criteria and indicators (C&I), which in turn can be used to assess the sustainability, quality, and performance of forest management systems.

Methods in this manual are focused on C&I for natural, tropical forests at the forest management unit level. They were developed during a CIFOR project on testing C&I for sustainable forest management in forests managed for timber production. The manual assists a variety of users to identify C&I that are objective, cost-effective, and locally relevant, and to field test C&I to identify the smallest number required to reliably assess forest management. A ten-step C&I development process is elaborated. Preparing for C&I testing, conducting C&I testing, and completing follow-up analysis involve the following steps: clarifying and reviewing the goals of sustainable forest management, creating and/or obtaining candidate sets of C&I, selecting sites where C&I testing will occur, selecting a group of experts to carry out the test, allowing experts to review and provide feedback on candidate C&I, compiling experts' comments, holding a workshop of experts to discuss and refine candidate C&I, field testing candidate C&I, convening a workshop of experts to finalise C&I, and documenting and publishing test results and selected C&I. The conceptual foundations of C&I development are discussed, including interpretations of sustainable forest management, key C&I terminology, and C&I suitability assessment. Three examples of how the methods outlined in this manual were applied and adapted to specific sites are provided. The case studies reviewed are the Initiative of the African Timber Organisation on Principles, Criterion, and Indicators for Sustainable Forest Management in Africa (Gabon Test); Criteria and Indicators in the Boise National Forest, Boise, Idaho (North American Test); and Developing Criteria and Indicators for Community Managed Forests in Cameroon, West Kalimantan, and Brazil (Community Forest Test). A valuable C&I literature review, annexes containing the forms required by this method, and completed examples are provided. Several possible baseline sets of criteria and indicators are offered, namely the CIFOR Generic Template of Criteria and Indicators, the Indonesia Ecolabeling Institute Criteria and Indicators, the International Tropical Timber Organization Criteria and Indicators Framework, the Forest Stewardship Council Principles and Criteria, the Montreal Process Working Group Criteria and Indicators, and the Tarapoto Criteria and Indicators.

- Prystupa, M.V. (1998). Barriers and strategies to the development of co-management regimes in New Zealand: The case of Te Waihora. *Human Organization, 57*(2), 134-144.

The case of co-management of Lake Te Waihora, near Christchurch on the South Island of New Zealand, is compared to Pinkerton's theoretical propositions on the development of co-management regimes. Catalysts for co-management in New Zealand are reviewed, including the Waitangi Tribunal, a Court of Appeal decision on the principles of the Treaty of Waitangi (New Zealand Maori Council V. Attorney General, 1987), the Conservation Act of 1987, grievances brought by Ngai Tahu (a Maori tribe) to the Waitangi Tribunal in 1986, and the Ngai Tahu treaty claim. Although Te Waihora co-management provisions were included in the Ngai Tahu treaty claims settlement of 1996, Maori encountered several barriers to the achievement of co-management. These barriers and the strategies Maori implemented to overcome them are reviewed. Barriers discussed relate to resource use conflicts, a lack of power-sharing by local government agencies, and the national public policy debate on the use of the Conservation Estate in treaty claim settlements. In the article, five Maori strategies utilised to overcome government resistance to co-management are examined and include: utilising the courts to define Maori land and resource rights; demonstrating co-management as a viable approach to the management of natural resources; building alliances with other interest who support Te Waihora co-management; generating human and financial resources to put Maori on a more level field when negotiating with the Crown; and strategically combining these approaches to arrive at Maori goals. In his analysis of the development of co-management in Te Waihora, Prystupa found that two of Pinkerton's theoretical propositions are rejected, six propositions are supported, and a new proposition is needed. Prystupa found that co-management was not furthered through an appeal to the public interest nor by Maori willingness to contribute financially and managerially to the restoration of the lake. The role of

litigation and the ability of other actors to capture a government agency were prominent precursors to the development of co-management. The new proposition advanced by the author is that co-management is more likely when the organisational capacity of proponents is sufficient to strategically employ tactics to overcome co-management barriers.

- Rangan, H. & Lane, M.B. (2001). Indigenous peoples and forest management: Comparative analysis of institutional approaches in Australia and India. *Society and Natural Resources, 14,* 145-160.

Recent co-management approaches that address issues of forest resource access and redistributive justice for indigenous people are examined. The paper focuses on regional forest agreements (RFAs) in Australia and joint forest management (JFM) in India. RFAs are formal arrangements between commonwealth and state governments concerning specific Crown forests that aim to resolve issues surrounding forest use, resource security for forest users, preservation of the cultural significance of forests, and conservation of important native forest tracts. They focus on consultation, conflict avoidance, and dispute resolution. JFM is a social forestry policy originating in the West Bengal Forest Department, India. Within this framework, the government and local communities collaborate to expand disadvantaged social classes' access to forest resources, to improve forest management systems, and to distribute financial benefits from the sale of forest products generated through shared effort. JFM committees consist of local and regional forest officers, elected village representatives, members of economically and socially disadvantaged groups, and members of local, non-political voluntary organisations. The authors attempt to improve upon previous policy comparisons in the literature by focusing on understanding the institutional processes that have produced different policy outcomes in these cases. Similarities and differences in institutional histories relating to forestry and indigenous people in Australia and India are examined. RFA and JFM are analysed according to how the two policies

deal with resource access and resource control among forest user groups, and how the demands of indigenous groups are incorporated (called substantive democracy). The relative strengths and weaknesses of both institutional processes and ways RFA and JFM can be more effective in involving indigenous groups are discussed. For instance, RFAs limit participatory assessment, marginalise local people's role in decision-making, and fail to address the actual needs and priorities of regional economies. Local communities are rarely involved and indigenous groups are restricted to input concerning the preservation of cultural heritage; native title claims and livelihood concerns are overlooked. On the other hand, the authors determine that JFM acknowledges the diversity of forest uses and accommodates them through collaborative decision-making and distributive outcomes.

- Robinson, C. (2001). Working towards regional agreements: Recent developments in co-operative resource management in Canada's British Columbia. *Australian Geographical Studies, 39*(2), 183-197.

Several recent examples of interim management agreements (established to provide a degree of certainty while treaties are underway) for the Skeena River salmon fishery are reviewed in this article. Lessons arising from this case for regional resource management and native title issues in Australia are considered. The author suggests co-management in Northwest BC confronts a complex array of nature/culture and power/identity relationships. The resulting relationships have influenced the development of fishery co-management in the region in both positive and negative ways. For instance, prompted by conservation concerns and resource use conflicts, local people have co-ordinated their distinct resource interests and management approaches. The problems and prospects co-management presents to indigenous people are discussed. Using the concept of hybridity, the contested and negotiated meanings surrounding the identity of fishing groups, the concept of conservation, rights to resources, and landscapes are examined. The author concludes that co-management offers to promote, rather

than disrupt, indigenous people's rights and responsibilities to their traditional territories. However, she suggests co-management must incorporate the unique cultural, historical, and physical geography of various local communities to ensure sensitivity to and respect for the network of social and human-environment relations surrounding a resource. Building shared understanding of resource values and management approaches is key to successful partnerships.

- Ross, A. & Pickering, K. (2002). The politics of reintegrating Australian Aboriginal and American Indian indigenous knowledge into resource management: The dynamics of resource appropriation and cultural revival. *Human Ecology, 30*(2), 187-214.

The role of Australian Aboriginal and American Indian communities in resource management is discussed in this article. Case studies focus on the Quandamooka of Australia and the Squaxin Island tribe of the United States. Methods such as meetings with tribes and government staff, and analysis of court proceedings and policy documents are used to reveal government objectives regarding indigenous knowledge and its application to resource management. Indigenous knowledge is defined as an information system that relates to resource management and is based on indigenous property rights and paradigms of spiritual and social relationships with nature. The authors observe that governments, in their attempt to assimilate indigenous people, have failed to recognise the value of traditional ecological knowledge. Case studies on coastal fisheries management systems are elaborated. Quandamooka manage oyster reefs, beds, and waters by ensuring clean headwaters, monitoring harvests, and protecting beds. Hunting is subject to social rules and traditional laws to ensure economic viability of oyster resources. Squaxin's sustainable harvest has provided for long-term survival of their fisheries, including clams, crabs, octopus, oysters, squid, and shrimp. Squaxin signed treaties to provide legal recognition of traditional rights and to access fish and shellfish resources on open and unclaimed lands. Through litigation, Squaxin have reclaimed

their treaty rights, which allow for participation in resource management decisions and, through the Northwest Indian Fisheries Commission, for co-management. The authors suggest that habitat destruction, species decline, and extinction consistently accompanied the spread of colonialism, and that the scientific method has excluded indigenous knowledge and failed to balance consumptive uses and conservation. For example, in the United States, encroachment of settlers, commercial and recreational fishers, and the imposition of government regulations resulted in overexploitation and erosion of Indian fishing and shellfishing rights. Ross and Pickering determine that establishing a basis for dialogue among governments, organisations, and indigenous groups is necessary to accomplish long-term sustainability. This entails reasserting indigenous knowledge by way of litigation or negotiation, national and/or state-level oversight of indigenous land issues, recognition of indigenous self-governance, and introduction of holistic conservation policies into mainstream management.

- Sassaman, R.W. & Miller, R.W. (1986). Native American forestry: Native Americans and the Bureau of Indian Affairs are co-operatively managing tribal forestlands. *Journal of Forestry, 84*(10), 26-31.

This article describes how Native Americans manage tribal forestlands with the Bureau of Indian Affairs to improve the economic, social, and cultural well-being of people on reserve. A historical overview of the relationship between BIA and Indian tribes is provided. The federal administration of forests extends from Washington, DC to area offices to local agencies on reservations. Twenty-five percent of Indian-owned land are forestlands (14.2 million acres) of which 5.9 million acres are classified as commercial forestland, 6.8 million acres as woodland and 1.5 million acres as non-commercial forest. Timber growing stock exceeds 44 billion board feet and supports an allowable cut of 1.02 billion board feet. When production is high, Indian owners receive over $100 million in stumpage revenue to support tribal programs, including employment and benefits to individual Indians. Commercial

forests are located on 103 reservations and other trust properties in 23 states. These forestlands are crucial to local economies, helping to supply national forest product demands, to stabilise resource dependant local communities, to build community capacity, and to develop business enterprises. Although BIA remains the major funding source for tribal forestry, many direct awards are granted through contracts; tribes also expend their own funds for intensive forest management. With BIA providing technical assistance, tribal enterprises in the forest sector have created employment and training in various businesses, such as sawmills, particleboard plants, post and poll plants, cedar-shake mills, log yards, value-added products, and firewood operations. A co-management strategy was developed with BIA, timber-owning tribes, and Intertribal Timber Council (a group formed in 1979 to actively engage BIA, the forest industry, and academia). Tribal forests are co-managed between owners and Bureau of Indian Affairs (BIA) agents according to mutual respect and assurance that owner objectives are upheld. Forest plans provide for multi-use management of timber products, grazing, watershed, wildlife habitat, fish habitat, recreation and aesthetics, as well as consideration of the social and economic well being of people living on and off reserve (e.g., traditional cultural values such as religious ceremonies and food/medicine gathering sites).

- Schafer, J. & Bell, R. (2002). The state and community-based resource management: The case of the Moribane Forest Reserve, Mozambique. *Journal of Southern African Studies, 28*(2), 401-420.

This article examines a community-based natural resource management (CBNRM) project in Mozambique, the Moribane Forest Reserve, to reveal new dimensions of CBNRM. It highlights the influence of local history, particularly conflict (e.g., civil war), on CBNRM. This case is also used to expose a weakness of CBNRM projects: states can use such projects to extend control over rural areas rather than to devolve control to local communities. Thus, CBNRM projects can fail to initiate and

advance decentralisation of power to local communities, a process generally viewed as essential to rural development in Africa. The study also suggests that economic and political motives dominate the Mozambican government's natural resource management decision-making; for instance, forestry personnel desire to protect the forest above all else and politicians are unwilling to allow local control in areas sympathetic to the opposition. The authors show that a culture of participatory development has been difficult to establish in the face of hierarchical and authoritarian state structures in Mozambique.

- Schusler, T.M., Decker, D.J., & Pfeffer, M.J. (2003). Social learning for collaborative natural resource management. *Society and Natural Resources, 15*, 309-326.

Social learning has been identified as a key to successful co-management; yet, this term is not widely understood. The authors investigate the potential and limitations of social learning through the New York State Department of Environmental Conservation's (NYSDEC) utilization of the Lake Ontario Islands Search Conference to engage diverse stakeholders from local communities in natural resources planning. Multiple qualitative data collection techniques, including participant observation, evaluation instruments, and structured telephone interviews, were utilized in the search conference to examine whether and how social learning occurred among participants. The contribution of social learning to identifying common purpose and developing collaborative relationships was also investigated. The authors focused on participants' social learning with regard to factual information, concerns of other participants, areas of disagreement and agreement, problems and opportunities, and community capacity. The authors conclude that social learning occurred among participants and show the areas where social learning was greatest and least. The authors present a model for how social learning occurs based on elements including open communication, diverse participation, unrestrained thinking, constructive conflict,

democratic structure, multiple sources of knowledge, extended engagement, informal interactions, and facilitation. The authors also outline several challenges to social learning, sustained collaboration, and joint action. The authors conclude by suggesting that social learning is essential but not sufficient for co-management. Appropriate structures and processes are needed to sustain learning and enable joint action. Such structures are unlikely to form without intervention by a local change agent. Additional research was recommended to determine what types of structures and processes for joint action could enable collaboration.

- Sekhar, N.U. (2000). Decentralized natural resource management: From state to co-management in India. *Journal of Environmental Planning and Management, 43*(1), 123-138.

This paper examines the decentralisation of resource management in India by focusing on the application of Joint Forest Management (JFM) policy to the Sariska Tiger Reserve (STR) and adjacent villages, Rajasthan, India. The impact of this environmental policy on natural resource conservation and state owned forests is analysed. Sekhar provides a review of common property theory, traces the history of common pool resource management and environmental movements in rural India, and explains the failure of state-run approaches. Complex problems associated with implementing JFM are examined. These relate to an inflexible top-down approach; failure to both consider differences within and between villages, and to adapt to local diversity in resource management; failure to consider the constraints of group organisation; failure of state bureaucracy to transfer decision-making power to local communities; nepotism and corruption at the local level; historical state-community conflicts that make partnership building difficult; marginalisation of local institutions and authority structures; limited research; lack of monitoring of environmental and social change; and, lack of local conflict-resolution mechanisms. Co-management of the STR is seen as a mechanism to overcome the weaknesses of state and community systems, to institutionalise

collaboration, and to equitably share the costs and benefits of management. However, JFM has not resulted in real decentralisation or improved management. Other forms of co-management or Joint Protected Area Management are recommended.

- Shackleton, S. & Campbell, B. (2001). *Devolution in natural resource management: Institutional arrangements and power shifts - a synthesis of case studies from southern Africa.* Jakarta, Indonesia: Centre for International Forestry Research.

This paper examines the transfer of authority, decision-making, and power accompanying the shift to community-based natural resource management (CBNRM) in a number of southern African countries. Fourteen case studies were completed in eight countries, including Botswana, Malawi, Namibia, Lesotho, South Africa, Tanzania, Zambia and Zimbabwe. This research aimed to determine the loci of power within different models of CBNRM, to understand the systems and institutions that define these models, and to pinpoint those models that provide opportunities for successful CBNRM. For each case, the authors describe the policies, institutions, and stakeholders involved; the new loci of power that emerged as a result of devolution; and the looming problems of each empowerment process. The impacts of devolution (e.g., shifts in control over decision-making or benefit flows) varied considerably among cases both within and between countries. Some empowerment schemes were marked successes, while others have resulted in capacity building but are unlikely to lead to sustainable resource management systems. The authors classify the CBNRM cases into four main institutional models. Local government structures or multi-stakeholder forums fail to promote community involvement, to transfer benefits to local people, to inspire local ownership, or to communicate with local people. Local level department sponsored organisations appear to be relatively successful CBNRM institutions, provided they confront local power dynamics and remain accountable

to the community. According to research findings, the more power and authority invested in these organisations and the more the state role is minimised, the more they are likely to succeed. Structures and systems outside the state hierarchy, such as traditional customs and norms, are limited by the absence of clear policy and legal frameworks for CBNRM, and lack of external support. True community-based management comprises legally recognised organisations consisting of local residents or resource users with proprietary rights over resources and, consequently, authority to manage, receive revenues, and distribute benefits. The authors suggest that community members support these schemes most fully. Analysis shows that appropriate policies and institutions for CBNRM are insufficient to guarantee success: a number of other conditions must be met. NGO's and donor agencies play a key role in facilitating the CBNRM process (e.g., mediation, power-brokering, or funding) and in building the capacity of local organisations. Achieving balance regarding the relative power and influence of traditional authority structures is important. Strong and legitimate traditional leadership will positively impact CBNRM but, where it is weak or biased, leaders should have little role (e.g., ex-officio or non-executive). The private sector provides a key vehicle for income generation, particularly where the potential for tourism and guide outfitting is high. Individual entrepreneurs from inside and outside communities were shown to pose a serious threat to the effective operation of CBNRM.

- Sherry, E.E. (2002). *Constructing partnership: A Delphi study of shared resource management in the North Yukon.* Unpublished Ph.D. dissertation, Ecosystem Science and Management, University of Northern BC, Prince George, British Columbia, Canada.

Shared resource management (SRM) offers an important approach for future stewardship of resources and is intended to blend Aboriginal and government approaches, gain greater Aboriginal community support, and enhance the effectiveness of numerous resource management functions. Innovative methods are

needed to achieve and advance the ambitious goals of power-sharing, equity, and the integration of knowledge inherent in SRM. The goals of the present study were to develop and test a method for First Nation people and government resource managers to explore the characteristics of effective SRM and to identify its essential elements for the North Yukon. A standard Delphi method was modified to specifically accommodate communication among Vuntut Gwitchin experts, Yukon government experts, and federal government experts. This dissertation examines the essential elements of SRM revealed by the modified Delphi method, the effectiveness of this new group interaction technique, its impacts on participants, and the key characteristics that contributed to its success. The modified Delphi method succeeded in engendering participation, in facilitating cross-cultural communication among diverse experts in remote locations, and in generating critical, structured thinking about a complex, common problem. Characteristics of the approach that contributed to these accomplishments included expert selection and motivation, communication adaptations, conflict management, and maintenance of a positive group climate. Participating experts experienced social learning, empowerment, and personal and professional change. Eleven essential elements of north Yukon SRM were identified, namely: a community-based approach to SRM; development of a common SRM vision and shared goals; skilled facilitation of a SRM group; partnership building efforts; elimination of cultural biases and stereotypes; effective communication among SRM partners; involvement of effective Aboriginal and government representatives; collaboration among government agencies and First Nations to collect, understand, and store knowledge and information related to science-based resource management and traditional environmental knowledge and management systems; using all available knowledge and information to make SRM decisions; development and use of effective SRM communication methods and mediums; and fulfilling the communication requirements of SRM. Findings in this research suggest that the modified Delphi method may have relevant application in other SRM settings and cultural contexts, as well as to broader cross-cultural issues.

- Sivaramkrishnan, K. (1998). Co-managed forests in West Bengal: Historical perspectives on community and control. *Journal of Sustainable Forestry, 7*(3/4), 23-51.

Co-management regimes redefine the role of state and 'community' in resource management and delimit a community of rights holders, with the underlying ideal that changing property rights structures is sufficient for introducing locally responsible forest management. However, as a study of Joint Forest Management (JFM) in West Bengal shows, this assumption is riddled with problems. It simplistically assumes forest dependent 'communities' as self-identifying and self-perpetuating, ignoring the dynamism of communities as well as the internal differences in social capabilities of their members. Intra-village conflict is often disregarded. When a community is ill-defined and/ or in a transition phase, state conferring of property rights can pose a new set of challenges to this 'community'. Transfer of rights to a community through the demarcation of a discrete area to be co-managed also often ignores historic rights of others (e.g. neighbouring village members) to forest resources in that community's newly bounded domain. Communities must be understood as evolving products of historical politics and policies. Moreover, assuming co-management is solely a re-definition of rights ignores often complex layerings of property and access rights, and jurisdictions that extend within and beyond the community to different levels of the state. Partitioning jurisdiction over the forest (e.g. its protection, use, and regeneration) involves different community members in differentiated roles, with differential power, as well as various outside agencies. Evolving concepts of expertise (scientific, traditional) also directly affect forest management participation. While co-management is desirable in terms of involving local people in managing the forests they depend on, it must be understood as more than an issue of redefining property rights. More research is needed on community formation, jurisdiction of different players, and the role and locus of expertise in management decisions.

Policy implications from such research must be assessed with an understanding of the unique historic, cultural and political context of each co-management regime.

- Skutsch, M.M. (2000). Conflict management and participation in community forestry. *Agroforestry Systems, 48,* 189-206.

Community foresters have often ignored conflict, although it is inherent to forest management. Groups promoting community forestry management have idealised the community as a homogeneous entity with no internal differences concerning needs or desires. Yet, existence of conflict may induce some community members to refuse to participate in community forestry initiatives. Skutsch proposes introducing conflict management as an important tool to improve community forestry. Firstly, the presence of conflict must be acknowledged as normal. In dealing with conflict management, each component – conflict identification, analysis and resolution – has its pitfalls (which are outlined in the article), and has been insufficiently studied in terms of forestry applications. Skutsch maintains that community forestry workers should be trained to identify conflict in participatory forest projects, and likens the situation to the need to convince forestry workers of the benefits of community participation in the 1980s. Training must stress fundamental issues underlying conflict, such as class, gender, and historical-political context. Conflict management should attempt to deal with issues of social justice (including redistributive equity), although this falls beyond the mandate of many forestry agencies whose foresters will most likely approach conflict resolution from an efficiency perspective in terms of its contribution to sustainable forest management. However, even identification of the injustices that bring about conflict is a positive first step.

- Smith, P. (1995). *Aboriginal participation in forest management: Not just another stakeholder*. Ottawa, Canada: National Aboriginal Forestry Association.

This position paper examines Aboriginal and treaty rights in Canada and how these interact with emerging forest policy. Current policies demand public processes or multi-stakeholder processes to ensure integration of all economic and environmental considerations into forest management. Smith explains that Aboriginal peoples consider themselves to be stewards of the forest and, as such, expect consideration as a different kind of stakeholder. When Aboriginal participants in policy and planning decisions are seen as "just another stakeholder", their Aboriginal rights and title are all too often disregarded. For this reason, Aboriginal political organisations demand to be regarded as a third level of government. Aboriginal interests in forested lands are bound to certain political, historical, legal, and economic circumstances, which have developed since European incursion on this continent. Smith examines each of these circumstances. She explores the constitutionally protected rights of Aboriginal people that derive from their historic occupation and possession of traditional territories. The binding nature of treaties and recent legal decisions that substantiate Treaty rights are explained. The unique relationship Aboriginal peoples have with the land, which provides the basis of economic, cultural and political activity in their communities, is discussed. The increasing recognition of Aboriginal rights in forest management on a number of fronts is detailed. Aboriginal rights are recognised internationally because traditional knowledge and practices are relevant to the conservation and sustainable management of forests. The federal government has developed strategies that commit to meaningful Aboriginal participation in the forest sector. BC's *Forest Practices Code* advances First Nations' involvement in planning as one of its "Guiding Principles". And, at the industry level, the BC Council of Forest Industries has identified the involvement of aboriginal people in the mainstream forestry economy as a key industry objective.

- Smith, P. (1998). Aboriginal and treaty rights and Aboriginal participation: Essential elements of sustainable forest management. *Forestry Chronicle, 74*(3), 327-333.

This article examines the impact of national and international C&I frameworks and private sector certification systems on Aboriginal communities. Smith explores why Aboriginal issues are an integral part of sustainable forest management by drawing from a series of UN Conference on the Environment and Development declarations. International and national efforts to develop C&I for sustainable forest management are discussed, including the Canadian Council of Forest Ministers C&I framework. Elements of the Canadian Standards Association and the Forest Stewardship Council certification systems, which pertain to Aboriginal rights and participation, are reviewed. Smith considers whether sustainable forest management initiatives will affect Aboriginal communities in terms of participation in forest management planning, economic opportunities, forest management on Reserve land, Aboriginal and treaty rights, Aboriginal values and traditional knowledge, and assessment and monitoring of forest management plans. The author concludes that the impact of SFM initiatives is unclear for both Aboriginal communities and forest management in general. She recommends that First Nations learn about C&I and certification systems to ensure their interests are protected in establishing, implementing, monitoring, and revising the standards that are developed.

- Smith, P.D. & McDonough, M.H. (2001). Beyond public participation: Fairness in natural resource decision-making. *Society and Natural Resources, 14,* 239-249.

This research involves the application of concepts of justice to natural resource decision-making. Theories of justice are reviewed to identify principles people use when judging the fairness of decision processes and outcomes. Three principles of *distributive* justice are identified: equity, equality, and need. Twelve principles of *procedural* justices are identified: direct participation in the decision, opportunity to voice one's opinion, consistency of people and across time, suppression of personal bias, use of accurate information, modifiability of decisions,

representativeness of the concerns of all recipients, adherence to prevailing ethical and moral standards, neutrality, trust in the benevolent intentions of decision-makers, status recognition, and being treated with dignity. Previous research shows that people's satisfaction with and support for decisions are primarily influenced by whether or not they feel fairly treated and/or that outcomes are fair. Therefore, the authors suggest it is essential that public participation initiatives be conducted fairly. To understand issues of fairness from citizens' perspectives, focus groups were conducted with public participants in the Northern Lower Michigan Ecosystem Management Project. Participants described their experiences with and attitudes toward different types of public participation and explained the criteria they use when judging the fairness of natural resource decision-making. The authors identify several themes similar to justice principles identified in legal, political, and business arenas, including the importance of representation, voice, consideration, logic, and desired outcomes. The authors suggest that public participation theory and practice can be simplified to a few key principles, which apply across situations. Improving public participation opportunities will require larger budgets, additional personnel, changes in decision-makers attitude and demeanour, cultural change, and fundamental alterations to decision-making processes.

- Spencer, J. (1997). Partnership building for sustainable development: An industry perspective from Saskatchewan. *Journal of Sustainable Forestry, 4*(3/4), 163-169.

This paper describes the evolution of the Prince Albert Model Forest. Montreal Lake Cree Nation, Saskatchewan Environment and Resource Management, the Federation of Saskatchewan Indian Nations, Prince Albert Grand Council, Canadian Institute of Forestry, Prince Albert National Park, and Weyerhaeuser signed an agreement in 1993 to create the Prince Albert Model Forest. The goal was to strengthen relationships with other forest stakeholders, to create an accurate database of

Saskatchewan forest information, and to create tools to improve sustainability and decision making. The Prince Albert Model Forest Board of Directors makes decisions by consensus after review by a Technical Committee. The key to successful management is open and honest communications, and a common purpose and objectives. All users are involved in collaboration planning efforts to determine future harvesting areas and identify areas of cultural significance. Some positive outcomes include a summer student work program, increased opportunities for training in First Nation communities, and direct-award wood harvesting contracts. With research and technology transfer and the involvement of all stakeholders, management practices and decisions have improved (e.g., protection of wildlife habitat and implementation of alternative harvest systems).

- Stevenson, M.A., Hardy, D.R., & Gravelines, L. (1997). Precious values: Integrating diverse forest values into forest management policy and action (Ontario). *Journal of Sustainable Forestry 4,* (3/4), 171-183.

There is growing awareness of the need to incorporate values, especially non-commercial values, into the forest management decision-making in Canada. Disputes across the country, from logging in Clayoquot Sound to the allocation of northern Alberta forests for pulpwood to the protection of old growth forests in Ontario, are indicators of the diverse values people hold for forests. This paper attempts to address the implementation of non-commercial forest interests (e.g. intrinsic values) and uses for future generations (e.g. option values) in decision-making. A definition of intrinsic values, spiritual values, ecological values, community values, and existence values is provided The authors found that a range of non-commercial values exist which cannot be measured or quantified, but should be considered in forest policy decisions and actions. Integrating core principles such as long-term ecosystem integrity and the welfare of future generations was found to be essential in creating balance and in guiding forest policy decisions. Monitoring core principles provides checks and balances in forest management.

Adherence to an irrevocable harm policy in decision making is also important to ensure that actions taken avoid permanent harm or elimination of a resource and/or species. Third Age Accounting is a holistic accounting framework to support the analysis of non-commercial values; this is a broad forestry planning balance sheet where all commercial and non-commercial values are considered. The paper draws several conclusions: forest management should include aboriginal traditions, for example the seven-generation time span; institutional and structural change must be community-based to provide a sense of empowerment; and, forestry decisions must occur within a provincial framework because provincial interests (e.g., in economic strength, social well-being, environmental protection, and ecosystem health) are significant policy determinants.

- Sundar, N. (2000). Unpacking the 'joint' in Joint Forest Management. *Development and Change*, *31,* 255-279.

India's Joint Forest Management (JFM) program, which establishes partnerships between forest departments and rural users of forest resources in the form of Forest Protection Committees (FPCs), dates to 1990. While it has been heralded as a new, community-based approach to protection of forest resources, Sundar notes that forms of forest co-management began in the 1930s: what is new is the extent to which NGOs and donors are involved in advocating its development. State devolution of power to local Forest Protection Committees may be fuelled by loss of legitimacy, financial hardships, and desires to appear more democratic due to concerns for social justice and true democratic development. In allowing community management of forests, the state simultaneously reshapes communities, by defining the issues, players, and extent of participation in resource management. This may limit communities' ability to pursue sustainable resource management on their own, as they become subject to forest department agendas. Sundar thus entertains common allegations that current JFM may be a form of state co-optation. Villagers become responsible for afforestation of areas

deforested by others, and have a limited ability to define other forestry management agendas that they may perceive as equally pressing as afforestation. Community participation occurs within the framework of state policy, often in part dictated by donor requirements, and is limited to resolving certain problems, while others that may be more important to communities remain outside the purview of the FPCs. Numerous aspects of JFM are non-participatory (e.g. status and jurisdiction of the FPCs, membership). Often, villagers prescribe their needs in accordance to what they perceive projects can produce. Sundar notes that JFM may deflect attention from the need for large-scale structural changes that would really empower people, by focussing on small-scale participatory endeavours. However, JFM may provide the groundwork for increased local politicisation, which may in turn serve as the springboard for needed systemic transformations.

- Sunderlin, W.D. & Gorospe, M.L.G. (1997). Fishers' organizations and modes of co-management: The case of San Miguel Bay, Philippines. *Human Organization, 56*(3), 333-343.

This article examines the co-management of aquatic and coastal resources in the case of a depleted estuarine gulf, San Miguel Bay, Philippines. The authors review the theory of fisheries co-management and distinguish between formal and informal modes of co-management (principally, the presence or absence of a governing body and legal framework). The article documents the development of two parallel modes of co-management that have emerged in San Miguel Bay: a formal mode, which is pluralistic and government initiated, and an informal mode oriented to the interests of small-scale fishers. Both arrangements arose in response to past government fishery policy failures and are directed at the issues of gear conflict, over-fishing, and declining livelihoods. The prospects and problems in implementing these two parallel modes are analysed. Although San Miguel Bay appeared to be an optimal setting for the emergence of co-management, the authors found that the formal mode is failing and the informal

mode faces serious constraints. Three key reasons for these difficulties are presented. Gear conflict and social stratification give rise to persistent divisions, low morale, apathy, and lack of political will among members of the formal arrangement. Funding limitations impede both formal and informal systems. Changes in resource use patterns at the level of household decision-making are undermining interest in organised efforts to control fishing effort and methods. The authors conclude that the development of co-management in San Miguel Bay remains an urgent priority and formal and informal modes must function in a complementary manner.

- Taylor, P.L. (2000). Producing more with less? Community forestry in Durango, Mexico in an era of trade liberalisation. *Rural Sociology, 65*(2), 253-274.

This article examines the effects of neoliberalism (a policy promoting privatisation, globalisation, and individualism) on community forestry efforts in Durango, Mexico. The author examines how Mexican community forestry institutions are changing, either being destroyed by large-scale political and economic restructuring or being transformed into new forms of collective management. How peasants respond to external structural changes and how they redefine community in a rapidly globalising system is also examined. The article commences with a discussion of common property theory, including the tragedy of the commons, institutional choice perspectives, and globalisation. An ethnographic case study of a peasant-organised community forest, Emiliano Zapata Union of Ejidos, is undertaken to identify constraints and opportunities for the organisation of common pool resource management regimes. The author finds that neoliberal reforms are changing community forestry in Mexico; new policies attempt to bypass rural organisations and deal directly with individuals, thereby marginalising intermediate peasant organisations such as the Emiliano Zapata Union of Ejidos, in local forestry activities. Neoliberal reforms undermine peasants' capacity to address their forestry sector's internal problems and to provide the necessary technical, social,

and political services to members. Consequently, community livelihoods are threatened and deforestation rates have potential to increase. In Durango, producers are transforming their community forestry organisation by taking on new political roles and economically diversifying, while peasants are addressing long-standing inefficiencies and perceived injustices in their community forest's organisation. This local response is ensuring that community forestry becomes a more viable form of collective management, rather than a vehicle to privatise forest resources. The author also advocates a multidimensional, qualitative approach to the assessment of common pool resource management regimes; in his view, his research advanced the study of social institutions by revealing them as historical processes of conflict and co-operation. Taylor concludes that common property resource theorists need to further investigate the impacts of globalisation on common pool management regimes.

- Thompson, H. (1999). Social forestry: An analysis of Indonesian forestry policy. *Journal of Contemporary Asia, 29*(2), 187-201.

This article is based on the premise that social forestry is mostly ignored in practice, even when mandated by existing legislation or protocol agreements, and, when it is implemented, occurs without regard for the end result of democratic participation. The author maintains that social forestry is often an instrument for the impoverishment and co-optation of forest peoples. The article begins with a review of common property theory and an examination of the phenomenon of tropical deforestation, and in particular Indonesian forestry. Social forestry is defined broadly as forestry that involves the participation of local, rural, or forest communities, families, or other types of community groups in activities involving trees or forests where participants acquire products or income for their efforts. Thompson examines the symbolism and socio-economic discourse surrounding the development of social forestry in Indonesia. He traces the path of forest related community development from the emphasis on industrialisation and modernisation

during the 1950s and 1960s, to a focus on local participation in the 1970s and 1980s, to the emergence of a new community forestry model in the 1990s. Different definitions and signification attributed to social forestry by a variety of organisations such as the Asian Development Bank, the World Bank, the Food and Agriculture Organisation, and the United Nations are reported. Thompson identifies two common elements of all forms of social forestry: local participation, including local knowledge of local resources and institutions for their production, management, and distribution; and, technological innovation applied to develop and maintain the productivity of the land. Several problems with contemporary social forestry programs are revealed: state foresters' reluctance to increase local people's access to and control over forests, reticence to acknowledge and implement the knowledge of forest peoples, a failure to secure local support and co-operation, a lack of local participation, and lack of real commitment and policy support to delegate management authority to communities. Social forestry is based on the principle that forest people will better conserve their environment if involved in decision-making. Yet, as currently implemented, social forestry in Indonesia fails to achieve this goal. The author concludes that forest people are not the primary threat to tropical forests; logging, plantations, and government resettlement are. Furthermore, Thompson finds that forest people's interests in conservation will not be realised by social forestry. Left with access to only the most minor forest products, local people's substantial commitment will never occur.

- Treseder, L. & Krogman, N.T. (1999). Features of First Nation forest management institutions and implications for sustainability. *Forestry Chronicle, 75*(5), 793-798.

This paper provides an overview of three approaches to forest management being applied by First Nations in Canada, including industrial forestry, forest co-management, and community forests. The advantages and disadvantages of each

approach for First Nations are examined according to empirical evidence in the literature. Forest co-management is defined as system of joint management where two or more parties have different interests in or values for forest resources. The content and structure of forest co-management in Canada varies widely and has a variety of applications such as protection of local resource management systems, protection of Aboriginal of treaty rights, and a mechanism to co-operate with third-parties to realise benefits from forest resources. Benefits of co-management may include better decision-making, more equitable decisions, strong local commitment to implementation of decisions, community-based development, decentralisation of decision-making, increased local employment, wider community involvement, and an increased sense of cultural identity. Disadvantages involve the potential for inequality among co-management partners, the complexities of third-party involvement, and the lack of public involvement in decision-making. The authors suggest that First Nations' quest to develop mutually beneficial forest management arrangements between government, industry, and Aboriginal communities is leading to institutional reform. The current level of reform promises incorporation of Aboriginal objectives into sustainable forest management and increased commitment to and support for local forest management practices.

- Tuler, S. & Webler, T. (1999). Voices from the forest: What participants expect of a public participation process. *Society and Natural Resources, 12,* 437-453.

Tuler and Webler interviewed 49 participants involved in a forest policy–making initiative (The Northern Forest Lands Council in northeast USA) about their ideas on what constituted 'good' principles for public participation. From interviews and focus groups they derived seven general categories of such principles, including: access to the process; power to influence the process and its outcomes, access to information, structural characteristics to encourage interaction, facilitating constructive personal behaviour, adequate analysis, and enabling social conditions for future processes. The authors offer quotes illustrating these principles; analysis

of these principles is not offered, and the authors themselves question to what extent the principles from one policy-making environment can be generalisable. None of the individuals who came to the public meetings as concerned citizens were interviewed.

- Varughese, G., & Ostrom, E. (2001). The contested role of heterogeneity in collective action: Some evidence from community forestry in Nepal. *World Development, 29*(5), 747-765.

In terms of common-pool resources management, heterogeneity of different types may encourage or discourage collective action. This article examines how the particular axes of 1) locational differences among community members to forest resources; 2) wealth disparity; and 3) sociocultural heterogeneity affect communities' abilities to pursue collective action regarding forest management. Examining 18 communities in the middle hills of Nepal, the authors concluded that differences do challenge communities' ability to organize, but do not have a determinant impact. Some groups overcame significant heterogeneity by developing organizations which offered diverse rights, benefits and duties to members which acknowledged their different situations (location, wealth) and interests in collective action. Where substantial benefits may accrue from creating institutions that acknowledge differences, users may indeed develop such institutions that are seen as fair and efficient by the majority of the community. A significant level of autonomy is required to do so, and face-to-face interaction facilitates such institutional developments.

- Vitug, M.D. (1997). The politics of community forestry in the Philippines. *Journal of Environment and Development, 6*(3), 334-340.

This article describes the shift in Philippine forest policy from timber licensing agreements (TLA) (tenures given to elites to garner political support during the

Marcos era) to community-based forestry. The TLA system was corporate-based and promoted destruction of Philippine forests (i.e., clear-cutting, lack of sustained-yield management, no reforestation, weak monitoring and law enforcement). The author explains that democratisation, an effective non-governmental organisation movement, and civil action enabled change. In 1990, community-based forestry was formally introduced and aimed at democratising access to forest resources and alleviating poverty, while protecting the remaining forests. The program was initiated in 55 upland and coastal communities and provided 25-year community forest management agreements, renewable for an additional 25 years. While considered an evolving and generally successful system, several problems hinder community forestry in the Philippines. A case study of Lianga, a 59000 ha community forest, reflects these challenges. Lianga demonstrates how political intervention can hinder community-based forest management. The author identifies three factors blocking implementation of Filipino community forestry reforms, namely pressure from vested interests in Congress and other politicians, corruption, and a Department of Environment and Natural Resources (DENR) not attuned to community needs. After two years of conflict related to these issues, consensus is developing in Lianga and a unified co-operative is beginning to function. To ensure the implementation and continuity of reforms, the author recommends DENR work with community institutions, local government officials and NGO's; strengthening community capacity; and, creating carefully controlled financial systems to eliminate corruption and nepotism.

- Waage, S. (2002). Collaborative salmon recovery planning: Examining decision making and implementation in Northeastern Oregon. *Society and Natural Resources, 16*, 295-307.

This article examines the effects of collaborative and consensus based natural resource planning efforts on decision-making processes. The author establishes a theoretical framework for the study based on two premises: there are many factors

hindering change within decision-making processes and, in the absence of larger societal shifts and/or structural changes, collaborative, multi-stakeholder planning processes are unlikely to alter broader, multi-layered systems of resource access, use, and decision-making. The author examines the degree to which a collaborative salmon recovery plan developed in northeastern Oregon's Wallowa County is implemented. Methods employed in this research include ethnography, participant observation at natural resources related meetings, interviews, analyses of aggregate socio-economic and ecological data, document analyses, and archival research. After reviewing factors leading to the development of the Salmon Recovery Plan, Waage assesses the degree to which the Plan's recommendations were followed at various decision-making fora. The author concludes that a range of factors tempered the implementation of this Plan. These include: the need to balance multiple and competing issues and diverse interests, the fact that implementation was volunteer-based with different parties have unfavourable advantages in terms of resources and connections with agencies that often assist in drafting grant applications, that landowners were reluctant to change the status quo with respect to water rights, and that there was strong support for private property rights. Despite failures in implementing the recommendations of this Plan, the author points to improved relations between the Nez Perce and their historical adversaries, landowners, which may, over time, have implications for future natural resources decision-making. The author provides several examples of this improved relationship and concludes by suggesting that the scope of collaborative planning process assessment should be expanded to include such second-order outcomes.

- Wall, G., Hallman, S., & Skibicki, A. (1995). *Shared and co-operative management models of national parks and national historic sites between governments and aboriginal peoples: An international comparative review*. Workshop on the co-Management of protected places, March 4-5, Edmonton, Alberta, Canada.

This report provides a critical overview of co-management between governments and Aboriginal people for the management of national parks and national historic sites in Australia, New Zealand, and the United States. The principles emerging from international experiences in protected areas management offer lessons for developing forest co-management models in Canada. The authors detail the historic conflict between Aboriginal people and park agencies, and suggest several idealised co-management models. This document explores the value and necessity of involving Aboriginal people in protected area management in terms of improving management, planning, and operation functions; redressing past injustice; utilising indigenous knowledge; providing enhanced economic opportunities; ensuring cultural survival; improving regional ecological integrity; and enhancing tourism experiences.

- Warner, G. (1997). Participatory management, popular knowledge, and community empowerment: The case of sea urchin harvesting in the Vieux-Fort area of St. Lucia. *Human Ecology, 25*(1), 29-46.

This paper focuses on a case study of co-management to address the threat of extinction in sea urchin stocks on the south-east coast of St. Lucia. Co-management was enacted in 1989 and engages sea urchin harvesters from Vieux-Fort and managers from the Department of Fisheries. This paper evaluates co-management of the sea urchin fishery as a participatory development process by examining issues of participation, the contribution of local or popular knowledge to management, and community empowerment. Several recommendations for further legitimising and institutionalising participatory management practice are advanced. The author found that Vieux-Fort co-management has advanced significantly towards participatory management (e.g., divers recommend seasons, closures, and harvest limits) compared to the conventional, top-down approach of government in St Lucia; however, more authority and responsibility must be devolved to the community level. The paper discusses the nature and extent of local knowledge of

sea urchins. Warner recommends greater incorporation and validation of local knowledge, training of divers in community-based research skills, and joint planning and execution of research projects. In terms of community empowerment, the roles and responsibilities of divers should be expanded and a two-tier licensing system implemented, thereby officially acknowledging the professional status of long-term licensees as divers/spear fishers. Warner determined a critical element of co-management is strengthening local-level users' organisations. Strategies for fostering community user groups include: engendering a sense of group identity; enabling divers to play a leading role in knowledge generation and verification; providing divers with training in business management or marketing skills; employing divers on a part-time basis as tour guides; and providing divers access to venues for information-sharing, development of alliances among local/regional/ international community-based marine resource management organisations, and exposure to relevant global issues.

- Wily, L. (1999). Moving forward in African community forestry: Trading power, not use rights. *Society and Natural Resources, 12,* 49-61.

This article focuses on local involvement in forest management and the devolution of authority to communities by examining the case of two community owned woodland reserves in Tanzania: the 9000 ha Duru-Haitemba Forest of Arusha Region and the 40000 ha Mgori Forest of the Singida Region. The evolution of these initiatives, local approaches to forest management, and the success of these endeavours are reviewed. The author addresses a persistent question for modern forestry: where is authority most productively vested? In the case of Duru-Haitemba and Mgori, eliminating the local sense of forest proprietorship by establishing a government reserve system eliminated local guardianship and the regional community's recognition of local property rights. As long as the government maintained control of forest resources, the basic position of local people persisted - 'get what we can for as long as we can out of the forest'. Wily

argues that joint forest management arrangements based on shared decision-making or those which ultimately rely on government control will never achieve the level of community responsibility required for self-reliant, cost effective, and sustainable management. These arrangements share the labour of management including the right to use or gain from forest products with communities, rather than sharing jurisdiction. In this scenario, community involvement is designed to reduce conflicts with users rather than as a management approach in its own right. Wily advises investing authority in the community and having the state act in an advisory capacity. In her view, this is the only arrangement that will ensure a positive transformation in forest protection and management. In the case of Duru-Haitemba and Mgori, the author concludes that the forests show evidence of recovery and a transformation in socio-political relations has occurred. The prime incentive for communities to actively manage the forests is their sense of ownership and control. Problems concerning wildlife poaching, fire management, the accountability of elected leaders, fiscal administration, and forest protection persist; however, as problems are confronted, local confidence and competence are accruing.

- Wolfe, J., Bechard, C., Cizek, P., & Cole, D. (1992*). Indigenous and western knowledge and resources management systems*. Guelph, Canada: University School of Rural Planning and Development, University of Guelph.

This report examines the possibility of bridging the gulf between Aboriginal and western knowledge/management systems. Insight is provided into problems and prospects for joint resource management. The nature of indigenous and western knowledge systems is examined in detail. Four non-native theories of indigenous resource management, including physical/economic anthropology and ethno-ecological theories, are presented. Barriers to the integration of western and indigenous knowledge systems and recommendations for effective co-management are provided. The authors argue that the application of traditional knowledge and

management systems to complex management issues will aid in overcoming perceptual, cultural, and disciplinary barriers, improving communication and understanding between local and government groups.

- Wollenberg, E., Edmunds, D., & Buck, L. (2000). Using scenarios to make decisions about the future: Anticipatory learning for the adaptive co-management of community forests. *Landscape and Urban Planning, 47,* 65-77.

This paper discusses scenario planning as an approach to adaptive co-management (ACM), a management style focused on bottom-up collaboration among multiple stakeholders. Scenario planning involves making predictions, coping with uncertainty, and increasing public involvement. Scenarios are snapshots or stories derived for visioning the future; they are tools to respond to and anticipate change. As options for the future, they reflect either an extrapolation of current forces or introduced changes, such as policies and management plans. Scenarios focus on analysis of uncertainties and causal relationships associated with potential decisions. They encourage critical thinking about risks and systems relationships, as well as social learning among diverse groups. The four basic elements of scenario analysis include: understanding differences between stakeholders at several levels (such as within community, among groups that co-manage or use the forest, outside the community, and with people responsible for other resources that affect the forest or are influenced by it); transparent methods, which are understood by all community users; creative methods, which allow community members to express ideas about the future; and use of specialists and stakeholders to collect information. The purpose of scenarios is to understand the implications of specific events or choices, such as unexpected market opportunities or implementation of a national forest protection strategy. Scenario planning should involve different representatives from the community – forest owners, users, beneficiaries, regulators, sponsors, competitors, or neighbours. Scenario methods result in people working interactively, sharing perceptions of future, and learning jointly. This

paper reports on the outcomes of scenario analyses conducted in Indonesia and Madagascar to support indigenous claims to forest resources and resource management rights. Each application aimed to create a framework for improved information flow and decision-making, to generate new understanding and social learning about forces for change, to facilitate responsible representation, and to facilitate an agreement that contributes to sustainable forest management. The authors found that generating scenarios allowed stakeholders and community members to cope with uncertainty, not by eliminating it, but by framing it, understanding the range of associated implications, and then exploring opportunities for change through mechanisms such as markets, tenure, policy, and competition. The main barrier to the implementation of this method was found to be cultural biases: people were unwilling to predict the future, particularly those accustomed to lack of power who defer to fate. Wollenberg, Edmunds, and Buck suggest approaching this barrier through group learning where only one scenario is used and consequences of decision-making are tested; this is known as a nested scenario to facilitate community-level learning. Recommendations concerning adaptation of the scenario analysis method to other community management settings are provided.