Collaborative natural resource and landuse planning in the copper canyon region, Chihuahua, Mexico: Prerequisites, incentives and challenges

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Abstract

Centralized forms of decision making have failed to halt natural resource degradation and achieve effective implementation of land-use policies. Stakeholder involvement in collaborative planning attempts to improve the environmental and political sustainability of natural resource management. However, collaboration can be costly and time consuming and must be adapted to context-specific conditions. Under these conditions, how should parties decide whether a situation lends itself to collaboration and whether engaging in the efforts and costs will likely be beneficial?

This research was designed to help provide an answer to these questions in the Copper Canyon Region (CCR), Chihuahua, Mexico, where initiatives for Tourism Development, Sustainable Forestry, Protected Area, and Urban Development and Territorial Ordering Plans were being formulated by independent government agencies.

The objectives of the research were to:

1. Examine the institutional context and stakeholder group (SHG) features to determine to what extent prerequisites for collaborative decision-making were present in the CCR; and

2. Identify incentives for collaboration among CCR SHG's based on the stakeholder and situation analysis.

Because of the exploratory nature of the inquiry, the need to record the viewpoints of a broad range of actors, and the need to generate descriptive information about perceptions and context, a qualitative, interpretation approach was considered most appropriate. Data collection techniques included semi-structured, in-depth, open-ended interviews with 50 informants; agency/organization document analysis; site visits; and observations of SHGs'

activities and interactions. Coding and analysis of the data were done with FolioVIEWS Infobase Manager Software.

Prerequisites for collaboration that were strongly present in the CCR included: a) multiple issues, approaches and stakeholder groups; b) shared interests and interdependence; c) an institutional and policy context conducive to stakeholder involvement; d) enough time to allow for a collaborative process; e) existence of a significant amount of baseline data necessary for policy design; and f) existence of previous collaborative efforts in the State of Chihuahua, from which experiences could be drawn.

Prerequisites that were only partially present were: a) willingness of groups to collaborate with others; b) SHG awareness and understanding of policy initiatives; c) SHG capacity, as expressed in internal cohesion, ability to identify a representative, functional decision-making mechanisms, and experience in decision-making; and d) SHG power, as evidenced in access to human, technical and economic resources.

Based on these findings, effective collaboration in the CCR appears possible but will depend on addressing those prerequisites only partially present. An analysis of options that could provide joint gains for the CCR SHG's was conducted, to provide the parties with specific information emerging from this research that might aid their decisions regarding whether to pursue collaboration.

The CCR presents many challenges that are similar to land-use planning efforts elsewhere. Possible approaches to these challenges include: a) providing a new role for local involvement in decision-making and knowledge generation; b) being responsive to differences in culture and worldview; c) raising awareness and educating, both in general and on specific topics; d) ensuring correspondence between rights and responsibilities; and e) adopting a process-oriented paradigm based on adaptation to change, the development of partnerships, and the vision of longer time-frames.

This research is not a final analysis of collaboration possibilities in the CCR, but it provides an assessment of prospects as they appeared early in the planning process. Stakeholder analysis and collaboration assessment were useful diagnostic tools. Planning and collaboration theory, however, predict that involving SHG's in fine-tuning the results from these diagnostic tools is essential not only for accuracy but also to help affected parties evaluate their commitment to a collaborative process.

BIOGRAPHICAL SKETCH

Ana Cordova was born in Monterrey, Mexico, on August 19, 1967. When she was a year and a half old her parents moved to Boulder, Colorado. This trip

initiated what was to become the life of a young Global Nomad. During the first eighteen years of her life, Ana lived in eleven cities in Mexico, the United States, Germany, France, Switzerland and Brazil, never attending the same school for more than two years.

Ana's interest in environmental topics began at age five, inspired by a litter collection program organized at her pre-school. Exposure to recycling, solar energy and environmental ethics programs throughout her school years served to strengthen her commitment to the environment. This led Ana to pursue an undergraduate degree in biology. She began her studies at the National Autonomous University of Mexico (UNAM), and --perhaps continuing the nomadic tradition-- transferred as a junior to Harvard and Radcliffe Colleges in Cambridge, Massachusetts, where she received her BA in 1990.

When she graduated, Ana was eager to gain professional experience but was not quite sure about which of many routes to take. She returned to Mexico and found her first job in the Chihuahua State Office for Rural Development. There she researched agricultural production systems and farmer 'rationale'. Later, she participated in the development of a solid waste management plan for the City of Chihuahua. Ana then became director of the Center for Environmental Quality at the Chihuahua campus of the Technological and Higher Studies Institute of Monterrey (ITESM), a private Mexican university.

With this professional experience in several fields of her interest behind her, Ana felt ready to continue her studies. Cornell University's program in Natural Resource Policy provided Ana with the flexibility and content to match her interests. She joined the MS/PhD program as a Fulbright fellow, in 1995. This thesis is the product of her first stage in the program.

Cornell University had had a special personal significance for Ana since before she expected to pursue her graduate studies here. So coming to Cornell has fulfilled a long-standing desire besides satisfying an intellectual aspiration. She has met wonderful people and greatly enjoyed Ithaca. In her personal life, Ana enjoys the outdoors, swimming, afternoon naps, chanting and spiritual inquiry. Recently, she has picked up a certain liking for banter.

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I have much to be grateful for and am happy to have the opportunity to express my appreciation.

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thinking, to organizing my work and to writing, and for his valuable insights on the essentials of negotiation.

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Bibliography

Chapter One

Introduction

Many natural resource and land-use planning efforts have been turning toward collaborative decision-making in recent years. This thesis uses stakeholder and situation analysis to examine the possibility of collaborative planning in the Copper Canyon Region (CCR), Chihuahua, Mexico. In this chapter I lay out the theoretical background for studying this issue, the research objectives, study site policy and institutional context, and an overview of the thesis.

Theoretical Background

Collaborative Planning

Many terms have been used to refer to the notion of collaborative decision-making: partnerships; joint, shared or co-management; multi-stakeholder/multiparty processes; roundtable agreements or negotiations; consensus-building or consensual approaches; co-operative approach; and community-based or participatory management.

Borrini-Feyerabend (1996, p.3) defined collaborative management as:

… a partnership by which various stakeholders agree on sharing among themselves the management functions, rights and responsibilities for a territory or a set of resources.

In defining partnership, Williams and Ellefson (1996, p.1) added the notions of interdependence and interests to be preserved:

A partnership can be described as coordination among interdependent stakeholder groups who have mutual or competing interests in an issue or an area, and work together to affect the future of that interest.

Practitioners of the Ecosystem Approach note the necessary on-going adaptation to change:

"An adaptive, flexible management style keeps implementation in step with the changing needs of the ecosystem. It promotes resiliency in natural resource and social systems and contributes to social learning".

Pimbert and Pretty (1995, p.41) pointed out the active role taken by local population in these forms of management:

Joint management recognizes the capacity of local resource users to be active partners (usually with government) in a power-sharing arrangement. In this

way, both the government's policy objectives and local people's use requirements have better chances of being met.

Finally, the conflict resolution literature has emphasized the atmosphere within which collaboration occurs, its voluntary nature, and the pivotal role a mediator can have:

"Consensus-building requires informal, face-to-face interaction among specially chosen representatives of all "stakeholding" groups; a voluntary effort to seek "all-gain" rather than "win-lose" solutions or watered-down political compromise; and, often, the assistance of a neutral facilitator or mediator".

Although the breadth of stakeholders involved and the types of resources or territory to be managed may differ greatly from one context to another, the common underlying themes in collaborative processes are the ideas of: a) an involvement in decision-making that goes beyond the traditional "agency-led", top-down approaches to include a multiplicity of interests and actors; b) the development and maintenance of a process to design and periodically revise or adapt policy, in contrast to the simple formulation of a one-time plan; c) the voluntary establishment of a long-term relationship --a 'partnership'--, based on shared goals and joint effort, which provides stability to agreements; d) consensus building and the search for joint gains, within an atmosphere of trust; and e) the sharing of benefits, rights, and authority along with functions, responsibilities and accountability. Collaborative processes require new, multiple and variable ways of interacting; the disposition to learn jointly; as well as flexibility in working techniques depending on which groups are part of the partnership. Being group processes, they demand longer time-frames than single-party policy design.

Stakeholders
According to Decker et al., the term "stakeholder" has emerged to represent any citizen potentially affected by or having a vested interest (a stake) in an issue, program, action or decision leading to an action. Stakeholders involved in natural resource planning efforts can include various combinations of individuals from government agencies (at federal, state and local levels); commercial and industrial interests (e.g. mining, timber, fishing); landowners --both communal and private--; local communities and resource users; and hunting, tourism, and conservation interests among others. In this thesis I will be using a broad definition of stakeholder as any group or individual that uses the resource, has an interest or claim on it, or will be affected by its management. The stake may "originate from institutional mandate, geographic proximity, historical association, dependence for livelihood, economic interest and a variety of other capacity and concerns" or may arise from "standing to claim legal protection; … political clout to draw elected and appointed officials into the dispute; … power to block implementation of a negotiated agreement; … sufficient moral claim to generate public sympathy" .

Why Collaboration?

The trend toward collaboration converges and draws from developments in various different fields: Participatory Rural Appraisal ; Protected Area Management ; Community-based Conservation ; Ecosystem and Adaptive Management ; Citizen Participation in Natural Resource Management ; Conflict Management ; Regulatory Negotiation ; Participatory Democracy and Action Research ; and International Environmental Policy .

Increasing involvement of stakeholders in natural resource and land-use planning stems from the attempts to improve the environmental and political sustainability of natural resource management. The trend toward collaboration follows the failure of centralized forms of decision-making to halt natural resource degradation, to alleviate poverty, and to achieve fair, stable, and effective implementation of natural resource policies. These frameworks and new perspectives have advocated that broader local participation can be more effective at achieving resource management plans that are better adapted to social, economic and local realities, and therefore more successful than centralized, top-down management approaches.

Community involvement --in protected area management, but also in any natural resource management-- became increasingly important with realizations such as "the fate of most of the earth's biological diversity lay in the hands of the poor people in the third world … where the interests of local communities prevail" and "no amount of additional funding for protected area management will have a positive effect if local peoples and communities are not convinced, trained and empowered to be key actors in biodiversity conservation" . However, collaboration in land-use planning should not be thought of as only between government agencies and communities, or only for protected areas. Collaboration should also include industries, private landowners, non-governmental organizations (NGO's) and other groups with interest in the way natural resources are used.

Collaboration is seen as a need when multiple types of resource tenure and ownership are involved, in such cases as forest and water resources. Political and social justice motivations have also been behind the push toward broader participation in decision making. Finally, this trend recognizes that no one agency or stakeholder group has the capacity to solve and regulate complex issues single-handedly and must seek the cooperation of diverse groups.

Many examples of varying degrees of co-management have been documented. Although collaboration is not a panacea and must be adapted to each context, it is still believed to be the best alternative to current challenges associated with managing resources in which many groups have an interest. Susskind and Cruikshank (1987, p.13) acknowledged the substantial time and the investment of public funds required for consensual approaches to solving public disputes,

but they were convinced "that in most cases the savings will far outweigh the additional costs". In their experience: "Negotiated approaches to consensus building have worked in a wide range of difficult and politically charged situations ... They can be tried anywhere, and at any time" (p.15). Little (1994, p.356) suggested that "...in the absence of strong empirical proof of a positive correlation between local participation and improved resource conservation, doing nothing about local participation produces worse results than trying to promote it."

The Costs of Collaboration and Ensuing Dilemmas

Collaborative approaches to decision making are much more time-consuming than vertical methods of policy design. They require local organizational and capacity building, and depend on very effective group processes. According to Pimbert and Pretty (1995, p.42),

Building appropriate partnerships between states and rural communities requires new legislation, policies, institutional linkages and processes. It requires the creation of communications networks and participatory research linkages between the public sector, NGO's and rural people involved in protected area management. Such changes will not come about simply through the increased awareness of policy makers and professionals. They will require shifts in the balance of social forces and power relations.

These are high costs, with no assurance that the collaborative efforts will be successful, if and when they are implemented. The costs and considerations of collaborative processes, therefore, naturally present a dilemma to many of the potential participants. Government agencies "need people's agreement and support, but they fear that this wider involvement is less controllable, less precise and so likely to slow down planning processes". Landowners are "hesitant to join partnerships because of their concern that cooperating with governmental agencies will leave them open to increased regulations. Yet paradoxically, participation also offers the landowner an opportunity to have input in the rule-making process or even 'get ahead' of a problem before governmental regulation becomes requisite. A similar tension exists for landowners who do not want to change but are challenged by inexorable regulations if their local resource problem is not addressed". The dilemma for certain activist groups is between capitalizing on unsolved crises to gain publicity, membership and strength and participating in the negotiation of a solution.

Purpose of the Study

Because both the costs and benefits of collaboration have the potential to be great, all SHG's and particularly government agency personnel --who currently develop most management and land-use plans-- need criteria with which to

evaluate whether to promote and engage themselves in a collaborative effort. Clearly, collaborative processes have advantages and disadvantages and generate dilemmas. They are not a blanket policy to be applied across the board to all and any situation, but rather need to be "tailored" to the context.

Collaboration is not appropriate or viable in some situations, such as when immediate action is needed, parties are too polarized, serious power differentials exist, and fundamental human values are in question, among others (see Chapter Three). However, if collaborative planning is still broadly recommended, the questions are then: under what circumstances and how can decision-makers evaluate feasibility?

This research was designed and conducted to help provide an answer to these questions. The objectives of the research were to:

1. Determine to what extent prerequisites for collaboration were present in the CCR and, from the degree of their presence, infer whether collaboration in land-use planning might be possible in that context; and
2. Identify incentives for collaboration among CCR stakeholder groups (SHG's) and suggest how these might be addressed, providing the parties with specific information emerging from this research that might aid their decisions regarding whether to pursue collaboration.

In this thesis, I will not make a case for collaboration. Rather, based on its recommendation by previous authors and building on prior research recommending stakeholder analysis as a diagnostic tool for policy design and collaboration assessment, I focus on identifying whether prerequisites for collaboration are present in the CCR.

Study Site Background: Copper Canyon, Chihuahua, Mexico.

The biophysical and socioeconomic descriptions of the CCR are developed in Chapter 3. In this section, I present the political and institutional context that framed the research for the thesis.

Policy Initiatives and Sectors with Growth Potential
During 1995, the Mexican Federal Tourism Ministry (Secretaría de Turismo -- SECTUR) and the National Fund for Tourism Promotion (Fondo Nacional para el Fomento al Turismo --FONATUR) announced their plan to design a Tourism Development Master Plan (TDMP) for the CCR, in collaboration with the Chihuahua State Department of Tourism. To guarantee the preservation of the landscape that they would be marketing and thus insure the large tourism investment they would be fostering, they proposed that the area be granted some "protected" status to prevent deforestation and landscape degradation. Under such a recommendation, the Federal Ministry for Environment, Natural Resources and Fisheries (Secretaría de Medio Ambiente, Recursos Naturales y

Pesca --SEMARNAP) became involved in analyzing various designations of protected area that might be applicable to the region. It soon became evident that both sectors (tourism and natural resources) had different objectives, working styles and stakeholder involvement approaches and effective collaboration never occurred. As a result of a complex set of factors (not addressed here), the tourism agencies later reclaimed the leadership of this initiative, leaving SEMARNAP the role of adjusting its participation to the needs of the TDMP.

During the first quarter of 1996, the State Directorate for Urban Development, Ecology and Housing (Dirección General de Desarrollo Urbano, Ecología y Vivienda --DUEV) began to design a Regional Urban Development and Ecological Territorial Ordering Plan (RUDETO) within which to frame all development in the CCR --including the TDMP. Independently and in parallel, the SHG's involved in forestry in the State of Chihuahua (government agencies, industry, forestry professionals, researchers, some landowners and environmental groups) joined efforts to develop the State Program for Sustainable Forestry Development (SPSFD).

Thus, by the summer of 1996, several policy initiatives affecting natural resource use in the CCR were being designed in independent government agencies. Besides these initiatives, sectors that promised to grow in importance during the following decade included high-volume mining and national efforts for the restitution of indigenous rights. Considering the geographic overlap, diversity of interests and stakeholder groups (SHG's) associated with these activities, as well as the need to use human, technical and economic resources efficiently; collaborative planning in the CCR land-use initiatives appeared to me to be an option worth considering.

Institutional and National Context

Any study on decision making and resource management in the Copper Canyon should consider the institutional and national context within which resource management and regional development decisions are made in Chihuahua and Mexico. Below, I point to some features that seem relevant to the Copper Canyon situation.

1. Numerous political jurisdictions and governmental agency interests overlap. There are at least 8 municipalities, a state government and a federal government. In Mexico, municipal governments usually do not have much input into decisions on their territory, particularly if they are rural and poor. This case is not an exception.

The agencies directly involved in the policy initiatives span tourism, forestry, mining, environmental protection, urban development and housing. Besides these, other agencies with vested interest and activities in the region are those

related to health, indigenous cultures, and rural development. Some coordination of agency investments in the region exists through the State Coordination of the Tarahumara (Coordinación Estatal de la Tarahumara --CET) and the Integral Mountain Development program (Desarrollo Integral Serrano), but there is no one agency that might lead a coordinated effort to implement a comprehensive regional policy for the area.

2. Party politics interfere. In Chihuahua, the state and federal governments are led by different political parties. This adds a dimension of distance between agencies and political fragility when conflicts arise and must be addressed.

3. Government agencies have insufficient human, technical and financial resources to address large scale natural resource management. Both federal and state-level natural resources agencies are understaffed. There are already several protected areas in Chihuahua, which are not appropriately delineated, patrolled, maintained, or managed. Agencies would not have the resources to enforce a complex land-use management plan.

4. Federal and State Administrations change every 6 years in Mexico. Each new President or Governor typically brings an agenda of their own. New agency directors are designated along with new administrations. Both situations lead to low levels of continuity in many government programs, and long-term planning, such as that required for natural resource management, becomes very difficult.

5. In Chihuahua, citizen participation in decision-making is incipient. There is little experience with meaningful community involvement in decision-making. Economically powerful stakeholder groups might participate more, but probably in an ad hoc, non-systematic manner.

6. An important planning effort had the potential to focus efforts toward regional-level planning. At the time this research began, the design and implementation of the TDMP in the CCR --an initiative that would involve significant public and private investment-- provided a context in which to reflect about how resources could be most effectively invested in this depressed region to ensure long-term, holistic benefits.

Organization and Overview of the Thesis

Chapter one presents the purpose of the thesis, the theoretical background, the political and institutional context of the study site and a thesis overview. The research methodology and its justification are presented in Chapter Two. The next three chapters develop the findings from the research.

Chapter Three presents a list of prerequisites for collaborative planning and addresses to what extent these existed in the CCR at the time of the study.

The set of prerequisites chosen for the analysis was developed based on natural resource/protected area management and conflict resolution literature. In this chapter I evaluated which prerequisites were satisfied and which ones needed to be further addressed and strengthened to provide the context for an effective collaborative process. I also discussed the usefulness of this type of diagnostic study for decision makers in identifying when to promote a collaborative process. The chapter is written as a manuscript to be submitted to a peer-reviewed journal and some elements overlap with sections of Chapters One and Two.

Having identified the presence of important prerequisites for collaboration among stakeholder groups in the CCR, in Chapter Four I developed examples of potential joint gains arising from the exchange of SHG interests. These examples were developed based on interview and document analysis. I also provided insight on the reasoning behind exchanging interests. Chapter Four is intended for the CCR audience, to contribute specific information resulting from this research that might aid the parties in their deliberations regarding whether to pursue collaboration.

Chapter Five presents illustrations of the challenges presented by collaboration, as evidenced in the CCR. Many of these challenges are common to similar land-use planning or natural resource management situations elsewhere. Recommendations on how to address such challenges in the CCR are presented. The recommendations are drawn from CCR data and also from relevant literature. This chapter links the results of this research with the broader discussions occurring in the fields of Collaboration and Partnerships, Land-Use Planning, and Natural Resource and Protected Area Management, and provides the conclusions of the thesis.

Policy analysis is particularly difficult when it is not retrospective, but rather takes place in an on-going, dynamic situation. Constant changes occur in SHG relations, positions, actions and context features that challenge the emerging research hypotheses. The simultaneous birth, dynamic early development and interactions between several land-use policies in the CCR created such a context of a constantly evolving object for this investigation. In this regard, this research cannot expect to be a final analysis of collaboration possibilities in the CCR, but only provide a snapshot of prospects as they appeared at one point in time.

CHAPTER TWO

METHODS

Research Approach

This research sought to identify whether favorable conditions for collaboration in natural resource management and land-use planning existed in the CCR, during 1995-1997. No previous research with this focus in the CCR was available. Stakeholder analysis had been recommended as a way to obtain insight on the viability of collaboration. This approach seemed appropriate for the CCR, where a study across several SHG's was needed to understand their structure and perceptions concerning natural resource use and related decision making. The interest at this stage was not to make generalizations, but rather to identify issues and opinions from a broad range of SHG's and their resulting implications for natural resource decision making.

Because of the exploratory nature of the inquiry, the need to record the opinions of a broad range of actors, and the need to generate descriptive information about the perceptions and context, a qualitative, interpretive approach was considered most appropriate. The research agenda was grounded in what was currently happening in the CCR --a rare opportunity to study a series of policy initiatives from their very inception-- and generated from my own interest in understanding the conditions under which collaboration is viable. This interest in assessing viability of collaboration was also shared by the agency staff who first mentioned the initiatives to me.

Data Collection

The data collection techniques I used included semi-structured, in-depth, open-ended interviews; agency/organization document analysis; site visits; and observations of SHGs' activities and interactions. The interviews focused on a) SHG descriptions of themselves as a group or a sector --organization, decision-making mechanisms, recent activities/initiatives, interests and needs, major problems; b) how they perceived the CCR situation --major problems, status of important natural resources and other concerns they mentioned; c) who they perceived as other stakeholders in the region and the types of relationships they had with these other groups, including collaborative experiences, if any; d) whose responsibility they thought certain decisions and actions were; and e) comments on current policy initiatives, when interviewees were already aware of one.

I spent eight weeks in the summer of 1996 in the CCR and one week in Mexico City, visiting government officials related to CCR initiatives. I met with different stakeholders, spent time with them in their offices and on field trips, and spent time in local communities. This allowed for the development of

rapport and the opportunity for good observations of their activities and interactions.

Sample and Sampling Rationale

Between April 1996 and May 1997, I interviewed 50 informants in person, with several follow-up contacts by telephone or electronically (email). Since some interview issues were potentially sensitive and because many interviewees were not accustomed to being audio-recorded, I took notes during most of my interviews. Seven interviews were, however, taped and transcribed in their entirety. Individuals interviewed belonged to state and government agencies related to forestry, tourism, natural resource conservation, mining, rural development and indigenous affairs; timber and mining industries; professional associations of foresters and geologists; NGO's; local touristic operations; and the local mestizo and Tarahumara populations in the CCR.

The SHG's analyzed (Table 2.1) were defined at the beginning of the study, based on document review of the major policy initiatives and conversations with several government agency representatives. The sampling criteria were focused on SHG's directly related to natural resource use. It was particularly important to include those people directly involved in policy formulation in the relevant government agencies and trade associations, but influential actors in other SHG's, including members of the local population --who have not traditionally participated in decision making-- were also sought. The list was corroborated with interviewees and refined on-site throughout the study.

Because I was interested in analyzing how the complete set of stakeholder groups interrelated at the time and how they would work under the possible context of a collaborative decision-making process for the region (independently of whether this collaboration was based on tourism development, natural resource management, or conservation and sustainable development interests), I felt compelled to study all stakeholder groups. At this exploratory and "discovery" stage, I preferred to sacrifice in-depth knowledge of a few SHG's for a broad understanding of many. Some SHG's were not interviewed in an extensive manner that would have reflected their internal heterogeneity (e.g. local mestizos). Complementary information about these was obtained through secondary sources (interviews of people with experience in the region and some policy diagnostic studies of the region). Secondary stakeholder groups, not interviewed in this study, included cattle ranchers, fishery-related people, municipal governments, and the narcotic sector.

Due to my previous four-year professional experience in rural and environmental issues in Chihuahua, I had working relationships with many of the key players involved in activities in the CCR. This enabled quick development of rapport and easy access to information. Through snowball references and other personal contacts, I was able to interview major

representatives in each SHG, including those directly involved in policy formulation, influential leaders and representatives, and others who were consistently recommended by contacts.

Data Analysis

Brief on-site analysis was important to maintain focus of my research efforts, as well as to redirect and readapt research techniques and instruments to the evolving research questions. For this purpose I periodically reviewed my findings to determine whether they were answering my original research question, to determine whether I was building toward the completion of my objectives and to redirect my inquiries if necessary.

Due to time constraints, I was not able to transcribe all interview notes and tapes on site. Most were transcribed and fleshed out during the following months at Cornell.

My first approach to analysis was to generate a category system of the issues that interviewees identified, in order to record what was important to them. As I transcribed each interview, I listed the themes and topics that arose. After 20 interviews, I had compiled a list of more than 300 issues, which I then began to synthesize into groups of related terms. It was evident that some of the themes should become major categories for my analysis because of their repeated mention by various interviewees, and the rest remained as keywords or key topics. Reviewing my research question and the collaborative decision-making literature, I developed a list of 10-15 categories with which I analyzed the data. As I continued to transcribe interviews, I refined the category system. In this manner, my category system was being developed iteratively in both a theory-based and an inductive data-based fashion.

On the final round of a complete category system, I had 28 categories and more than 40 keywords. Some of these categories formed the basis for addressing the prerequisites for collaborative decision-making used in Chapter Three; others formed the material to develop options for mutual gain, presented in Chapter Four; and others were the basis for organizing the reflections in Chapter Five. In fact, the organization of this thesis emerged from the category system as a whole.

Computer-based Qualitative Data Analysis

Coding and analysis of the data were done with the FolioVIEWS Infobase Manager 3.1 software. Transcribed interviews were imported into the Infobase and codes were applied by selecting sections of text under 'group' headings. The group headings to choose from were the categories and keywords that I had been developing during the transcription phase. Through the 'query' function, FolioVIEWS allows one to recall all the sections coded under one

category (with reference to interviewee and interview section identification) and access them in sequence, facilitating a "virtual dialogue" between the different interviewees on each specific topic.

Working with a split-screen technique, I ran two infobases concurrently: the data infobase and an audit trail infobase in which I recorded my analysis and reflections. This enabled me to record my analysis while having direct access to the original data. Other features of the software, such as 'highlighters', 'jump-links', 'levels', and 'fields' were very useful in organizing the data and facilitating access upon specific analysis requirements.

Data Quality and Validity

Patton (1990) mentioned a) rigorous methods for gathering high-quality data that is carefully analyzed and b) the credibility of the researcher, which is dependent on training, experience, track record, status and presentation of self, as two important elements to provide credibility to qualitative analysis. Information accuracy in my research was verified through: a) triangulation between different interviewees' comments on the same subject, and triangulation between interviews, documents and observations; b) occasional member checks during interviews to confirm the accuracy of my interpretations of interviewees' comments; c) a preliminary data-summary document sent to interviewees for voluntary feedback; and d) direct access to interview data -- facilitated through the computer software-- to keep my analysis "grounded".

For all stakeholder groups, I tried to be introduced by an insider if possible, or by a close collaborator. This improved the timing in which rapport was established and informants' trust was generated, and also assisted in interviewees' perception of me as an independent researcher, not tightly associated with any one specific stakeholder group.

Although I had no previous experience working in the CCR itself, I did have several years of professional experience in rural development and environmental issues in various regions of the state of Chihuahua. I had worked with the state government, farmers' associations, and private educational institutions, and on municipal projects. In my various assignments, I had established working relations with many of those who would later be key players in the CCR initiatives.

Reciprocity to the Stakeholders

It was very important to me that, besides providing material for my master's thesis, this research produce information relevant to the CCR SHG's. I feel I have provided reciprocity with my informants by stimulating a process of critical reflection during the research process and by preparing preliminary and final result documents for the interviewees. I have offered my information to

all SHG's and maintained contact with those who have wished to pursue and share my ideas and discoveries.

Subjectivity

The interpretive approach to research recognizes that researchers' subjectivity may bias the data collection and analysis processes. Making the subjectivity explicit, and thus taking awareness of it, is one way to undermine its influence. Manifesting our subjectivity also allows readers to weave out our potential individual proclivities.

I have a strong personal interest in discovering ways to achieve a balanced development that harmonizes social, economic and environmental aspects. I tend to emphasize the social and environmental content of policy, for those two aspects are what I perceive as missing in the majority of public policy cases --which seem more administrative and economically oriented. My focus on natural resources, as a criterion on which to base land-use planning strategies, and my interest in collaboration between varieties of actors provided the lens through which this research was structured. They defined the subjects of my research and the activities to be studied. Thus, I may have given less importance than another researcher might have to economic, commercial and political factors.

Although I did not have an intrinsic preference for any one specific stakeholder group, my personal convictions might have lead me to value and sympathize more with stakeholders who shared my views, and less with those that did not. However, the tenets of collaboration theory, which hold that all perspectives are necessary at the 'negotiation' table, would provide a balance to my unconscious preferences by making it necessary for me to constantly "put myself in others' shoes". I began and worked through this study with great optimism in the potential of collaboration. This may raise questions regarding my inquiry and analysis inclinations. It is possible that, because of my personal optimism, I might have tended to focus more on options for collaboration than on constraints, maximizing the importance of the former in detriment of the latter. Optimism for collaboration might have also affected the themes I pursued in interviews and those that were more readily emphasized in my note-taking. I addressed the potential influence of this optimism on my research by deliberately dedicating time to inquire, analyze and report difficulties and constraints to collaboration in the CCR (e.g. Table 3.4). In this thesis, after my analysis of the presence of prerequisites for collaboration in the CCR, I address the presence of constraints. Finally, my conclusions on the prospects for collaboration in the CCR do not seem simplistically optimistic. They present the potential for collaboration in positive terms, but qualify this potential by the need to address certain prerequisites without which collaboration would not be effective.

Another important consideration of the effect of my subjectivity on this research is that I have close relationships (kin, friendship, long-standing working) with several key players in the CCR situation. This seemed to be an advantage at the outset of the research, because it enabled quick and easy access to information and very much openness in the provision of it. However, these relationships also proved to imply a greater responsibility than I would have liked, for some people spoke to me as friends about other stakeholder groups, and it was not always clear whether they expected me to provide similar information to them in return. They might also have thought that because we had personal ties, I would support their position. On the other hand, stakeholders with whom I did not have a previous relationship may have believed at the outset that I was "on the side" of those I was related to in one way or another. I have addressed this difficulty by treating all interviewees in the same manner: providing all of them with the preliminary and final reports and offering to prepare for them any other information they felt would be useful and to which I had access without breaching anyone's confidentiality.

Finally, being an 'outsider' to the scene and not identified with any one stakeholder group in particular also had advantages and disadvantages. The advantage was that I was able to access information from a range of stakeholder groups that few of the stakeholders studied may have been able to do. The disadvantage was that, not having been commissioned by any one of the stakeholders to do this study, I did not receive complete or significant logistical support from any one group --but rather had to request parts from different groups. More importantly, no one SHG is committed to adopting the recommendations of this work. The implication is that at this point, an extra effort is required to ensure that the final report is read and the results addressed by the CCR SHG's.

Limitations

One limitation of this work is the inability to generalize or to provide statistical representativeness from the qualitative results. As mentioned earlier, for the purposes of this research, a broad overview of more SHG's was preferred over an in-depth analysis of a few. This implies that I did not delve into the heterogeneity of all groups, though I did sample for significant variation.

The local population was the group that I sampled least well. I had a language and communication handicap with the Tarahumara population, limiting my interview possibilities to those who spoke Spanish and those to whom someone else could introduce me. I addressed this limitation to a certain degree through conducting more interviews in this group, and through interviewing the Indigenist Specialists --those with a long-time working and living experience with the Tarahumaras--, who could convey to me in my language and my mind-frame the perspectives of Tarahumaras on the issues of interest.

I conducted relatively few interviews among the local mestizo population. This reflects the difficulty of working with groups who have different use of language, different timings and different deliberation and decision-making processes (see Chapter 5). It also demonstrates the difficulty involved in identifying representatives of such heterogeneous groups as 'communities'. My local mestizo sample was biased toward male, wealthier, heads of households --although wives were present in several interviews and made sporadic comments. I addressed this limitation by complementing information about local population with two sources: interviews with other people who worked closely with them (forestry and rural development professionals and social workers) and diagnostic studies prepared by one of the agencies. The information I collected was sufficient for my particular research needs. However, for a more comprehensive understanding of local perceptions, a research strategy with more time in the field, more participatory techniques, and a directed effort to sample subgroups within the population would be necessary.

Other stakeholder groups that have an influence in the region, but that were not interviewed in my study, included: municipal presidents; local, small-scale sawmill operators; the churches; transportation and commercial interests; academic institutions (both in the CCR and the Natural Resource Department at the State University); political parties; and the narcotic sector. It was considered that their influence on natural resource use was secondary, but they may have more important roles to play in collaborative and development efforts in general. The narcotic sector was difficult to access due its illegal and clandestine nature. However, this group used natural resources in the CCR; it would be affected by and could have an impact on management plans; and it had an important economic and social impact in the region. In this sense, it is very important to identify their perceptions and potential impacts, and creative ways to do so should be considered in future studies. In terms of analysis techniques, transcription from notes is less accurate than from audiocassettes, and several months' delay between interview and transcription also implies loss of information. Fortunately, in this case, I had a wealth of data that exceeded my needs, and the loss of some information was not critical. However, for future studies, I highly recommend scheduling time for transcription in the field.

CHAPTER THREE

ASSESSING THE OPPORTUNITY FOR COLLABORATIVE LAND-USE PLANNING: AN APPLICATION TO THE COPPER CANYON REGION, MEXICO.

Abstract

Natural resource managers and land-use planners worldwide are recommending collaborative decision-making as a way to improve policy designs and achieve more stable implementation of initiatives than those resulting from top-down, centralized forms of management. Through a series of personal interviews and extensive document analysis, we examined the institutional context and stakeholder group (SHG) features to determine to what extent prerequisites for collaborative decision-making were present in the Copper Canyon Region (CCR), Mexico, where initiatives for Tourism, Forestry, Protected Area, and Urban Development and Territorial Ordering Plans were being formulated by independent government agencies. Prerequisites that were strongly present included: a) multiple issues, multiple approaches and multiple stakeholder groups; b) shared interests and interdependence; c) an institutional and policy context conducive to stakeholder involvement; d) enough time to allow for a collaborative process; e) the existence of a significant amount of baseline data necessary for policy design; and f) the existence of previous collaborative efforts in the State of Chihuahua, from which experience could be drawn.

Prerequisites that were present to a certain degree, or unevenly among SHG's, were: a) willingness of groups to collaborate with others; b) SHG awareness and understanding of policy initiatives; c) SHG capacity, as expressed in internal cohesion, ability to identify a representative, functional decision-making mechanisms, and experience in decision-making; and d) SHG power, as evidenced in access to human, technical and economic resources.

Based on these findings, effective collaboration in the CCR appears possible but will depend on addressing the second set of prerequisites. Stakeholder analysis and collaboration assessment were useful diagnostic tools. However, they must be complemented with other information and their results should be fine-tuned by the SHG's involved.

Introduction

Many natural resource and land-use planning efforts have been directed toward collaborative planning in recent years. Planning practitioners and decision-makers could use a diagnostic tool to help assess the potential for collaborative

processes. This paper reports on an effort to develop and apply such a tool in the Copper Canyon Region (CCR), Chihuahua, Mexico.

Borrini-Feyerabend (1996, p.3) defined collaborative management as: "a partnership by which various stakeholders agree on sharing among themselves the management functions, rights and responsibilities for a territory or a set of resources", and "A partnership can be described as coordination among interdependent stakeholder groups who have mutual or competing interests in an issue or an area, and work together to affect the future of that interest …" (Williams and Ellefson 1996, p.1).

The trend for collaborative planning stems from the search to improve the natural and political sustainability of natural resource management and follows the failure of other methods of decision-making in achieving fair, stable, and effective implementation of policies. This trend converges and draws from developments in various different fields: Participatory Rural Appraisal ; Protected Area Management ; Community-based Conservation ; Ecosystem and Adaptive Management ;Citizen Participation in Natural Resource Management ; Conflict Management ; Regulatory Negotiation ; Participatory Democracy and Action Research ; and International Environmental Policy .

If collaborative planning is broadly recommended, then questions arise: under what circumstances and how can decision makers evaluate feasibility? This research was designed and conducted to help provide an answer to these questions in the context of the CCR.

Since 1995, the CCR has received increased attention from diverse government agencies and interest groups. By 1997, several policy initiatives affecting natural resource use were being designed: a federal-state Tourism Development Master Plan (TDMP), a proposal for a Protected Area (PA), a State Program for Sustainable Forestry Development, and a Regional Urban Development and Ecological Territorial Ordering Plan (RUDETO). Besides these initiatives, sectors that promised to grow in importance in the next decade included high-volume mining and national efforts for the restitution of indigenous rights. Collaborative planning appeared worth considering in view of the geographic overlap, the diversity of interests and of stakeholder groups (SHG's), as well as the need to efficiently use human, technical and economic resources in this situation.

Diagnostics for Assessing Collaboration Potential

Stakeholder analysis is an important diagnostic tool in the design of projects and policies, including consensus-building and collaboration processes. Using stakeholder and situation analysis, the purpose of this study was to identify to what extent prerequisites for successful collaborative processes were present in the emerging CCR context. This type of diagnostic study can serve as an

example to decision makers involved in similar, complex land-use planning issues and can help guide them toward potentially effective planning processes.

The prerequisites for collaboration presented below were developed based on natural resource/protected area management and conflict resolution literature. Some of these conditions refer to stakeholder group features; others to conditions in the environment or context. This list provides a diagnostic tool that can be used to assess the extent to which conditions for collaborative planning are met for a particular site or issue.

1. There are multiple issues, multiple approaches to addressing those issues and multiple stakeholder groups involved. No one SHG can solve the issues on its own.

Multiplicity of issues, SHG's and approaches is typical of land-use planning efforts. In many cases, this multiplicity implies that no one SHG can solve the issues on its own. Thus, collaboration is required. Collaborative relations become more important when there is no simple or universally agreed upon solution due to varying ways in which the issues can be addressed. Furthermore, multiplicity of issues provides the space for "inventing, packaging, trading and redefining issues" , the possibility to set out actions at different levels, and the raw material for creating joint gains .

2. It is in the parties' self-interest to collaborate by virtue of shared interests, shared fears, and interdependence.

Shared interests mean that SHG's express interest in the same issues. This does not imply that SHG's give the same priority to the interests, that SHG's understand the issue in the same way, or that all SHG's feel the issues should be addressed in the same way. Shared interests, however, establish a common ground from which consensus can be built. Shared fears may also motivate collaboration at various levels. Fear or worry is a different way of expressing an interest, and sometimes more effective at generating action.

By identifying specific common goals toward which the SHG's would jointly work, shared interests and fears can create the "team" atmosphere characteristic of collaboration. Identifying specific common interests can simplify complex issues around which SHG's may have formed "locked" positions. These complex issues can be broken into more flexible individual decision elements, upon which specific decisions can be made. This shifts focus away from positions (actions) and toward interests (underlying causes) --a recommendation of principled negotiation .The simplification of complex issues into smaller decision-making elements helps "separate the people from the problem" and, by unlocking positions, aides in the effacement of stereotypes SHG's have of one another --another recommendation of principled negotiation.

Interdependence implies one SHG depends on support from another for the successful realization of the activity it intends to pursue; it means that parties "must satisfy the needs of those other parties to achieve their own goals" and thus cannot take unilateral action. Interdependence is one of the most compelling forces to bring parties to collaboration.

3. Willingness of groups to collaborate with others.

Many authors note the importance that "voluntary" participation has for the success of a collaborative process. Parties need to be persuaded "that it is in their interest to sit down and talk". The willingness of SHG's to collaborate may depend on several factors, including:

a) The degree to which they realize the interests they share with others, and the interdependence of the satisfaction of their own needs with the satisfaction of other groups' needs. The fact that shared interests and interdependence exist is favorable for recommending a collaborative process. However, unless the SHG's realize the presence of these two factors and thus see collaboration in their own self-interest, it will be difficult, in practice, to attract them to a collaborative process; b) The quality of their Best Alternative to a Negotiated Agreement (BATNA) or what they can achieve without collaborating; c) What there is to gain if they do collaborate (possibilities for joint gains); and d) The confidence they have that they can make a difference as a group.

At the onset of a collaborative process, all parties must be willing to participate. However, unlike other prerequisites, willingness is one that can relatively easily be altered: people can be made aware of shared interests and interdependence; their perceptions and understanding of their BATNA's can be changed; incentives for participation can be created, etc. In a diagnostic study, current willingness of SHG's to collaborate must be assessed in order to determine how to address these variables if a collaborative process is begun.

4. There is a general institutional and policy context conducive to stakeholder involvement.

Supportive institutions, policy, and legislation are critical in ensuring the success of collaboration in natural resource management. Policy and legislation guarantee continuity, enable public administrators (agency officials) to adopt the out coming plans of collaboration, allow information to be shared, justify budgetary expenses, and legitimize authority devolved. Legal mandate (e.g. of agencies), legal entitlement (e.g. depending on resource ownership) and availability of resources to participate in decision-making can greatly facilitate parties' involvement in collaboration.

5. The timing is appropriate.

Timing has two aspects crucial for the feasibility assessment of a collaborative process:

5.1. Issues are defined well enough for purposes of discussion and decision. It is the right time to involve a broader audience in decision-making when issues are known and ripe for decision and stakeholders are ready to collaborate. For parties to engage in collaboration, issues must be sufficiently defined to focus discussion and immanent for decision. "Ripeness" of issues can be a delicate balance. If a policy initiative is still too far in its initial stages and goals are not clear to its proponents, it will not be easy to know what is being negotiated and "defended". Alternatively, if the initiative is already designed to the smallest detail, few specifics are left open to negotiation, and the proponents are more 'tied' to the details, then the potential for generating new options for mutual gain and the genuineness with which other SHG's feel they are being invited to participate will be quite limited.

5.2. Enough time exists for a collaborative decision to be reached. Collaborative processes are appropriate for situations in which there is enough time to deliberate in a multiparty setting -- i.e. there is not an emergency situation requiring immediate solution-- yet there is a deadline which motivates collaborative effort. An important prerequisite for collaboration is the capacity to participate in collaborative decision-making. Capacity is itself composed of a complex set of features and circumstances. To facilitate the analysis of 'capacity to participate', we have divided this condition into two categories: a) context-related circumstances --prerequisite 6-- and b) intrinsic features of the parties themselves and the sectors to which they belong -- prerequisite 7. The latter category includes concepts also referred to as "organization of the parties". Both categories are further subdivided, as explained below.

6. There is capacity for collaborative decision-making: Information and Experience exist.

6.1 Information. To be effective, land-use planning requires the existence and availability of information on demographic, socio-economic, cultural, biological and market issues, among others. These data do not always exist at the outset of policy design but are necessary for decision-making. In many cases, information exists but is dispersed or unavailable. Information needs are constantly evolving in a collaborative process, and joint fact-finding during the process has many advantages.

6.2 Previous collaborative experience. Previous experience in collaboration can affect parties' willingness to cooperate. According to Grimble and Chan (1995, p.122), cooperative action between parties is "more likely to occur over a new issue if there has been a history of cooperation over other issues in the past.

Conversely, if there is a history of conflict between two stakeholder groups, the emergence of shared interests over a particular issue may not be enough to overcome the conflict." Furthermore, previous collaborative experience is likely to provide participants with skills that will facilitate consensus-building in new collaborative processes.

7. There is capacity for collaborative decision-making: intrinsic features of SHG's and sectors. We have divided Grimble and Chan's (1995) concept of 'Cohesiveness' into two components:

7.1 Homogeneity -- referring to the degree of agreement among the members of a group on interests and how they perceive things-- and 7.2 Internal Cohesion --referring to how well the members of a group coalesce around decisions and or actions. Somewhat related to group 'cohesiveness' is:

7.3 Capability to identify a representative. Collaboration is more successful if SHG's can identify a spokesperson that is legitimate, truly representative and can make decisions or commit.

Decision-making capacity was divided into:

7.4 Functional decision-making mechanisms. Does the SHG have periodic meetings and mechanisms to communicate ideas, opinions and come to decisions, and 7.5 Experience in decision-making? Has the SHG traditionally made decisions about its present and future? Have they interacted with other groups to make decisions? Would they feel at ease doing so?

8. Power is balanced at the negotiation table. There is a level playing field.

Power of SHG's can be measured in terms of access to economic and human/technical resources among other indicators. Rarely is power balanced among land-use related SHG's, but mechanisms to redress the balance --such as access to negotiation training, travel funds for groups who cannot pay their journey to planning meetings, provision of equivalent information to all parties, etc.--should be utilized for effective negotiation to take place .

Site Description

The Copper Canyon is located in the mountainous region of Southwestern Chihuahua, Northern Mexico. This mountain range, the Sierra Tarahumara -- named after the Tarahumara Indians, who represent the most populous indigenous ethnic group of this region--, is part of the Sierra Madre Occidental, which runs from North to South through the Western part of Mexico. The area of interest covers approximately 1 million ha., under the jurisdiction of several municipalities (Figure 3.1).

Because of its spectacular gorges and canyons, beautiful forests, rivers, lakes and waterfalls, the CCR is known as one of the greatest mountain scenic beauties of Mexico.

The area is biologically and ecologically important. The ample altitudinal ranges create temperature, precipitation and insolation gradients that allow for the presence of a diversity of habitats. There are many endemic pine, bird and reptile species, as well as several threatened and endangered species.

Figure 3.1 Location of the Copper Canyon Region, Chihuahua, Mexico. (Source: Bosque Modelo Chihuahua, A.C.)

The intensity of resource extraction, lack of regulation enforcement and lack of environmental impact mitigation activities are leading to severe resource degradation and depletion. The large scale economic activities in the region have traditionally been mining and timber extraction. Some tourism infrastructure exists. Marginal productive activities include small-scale fishery, subsistence agriculture, and craft production. The region also harbors clandestine areas of narcotic production.

Local communities have not been the main beneficiaries of intense natural resource extraction in the area. The benefits have primarily profited outsiders, be they large landowners, companies, government agencies, or others. As a result, the area is socio-economically impoverished. The Sierra Tarahumara, the poorest region of the state of Chihuahua, has living standards considered two and three times below the national average. The majority of the population is 'mestizo' or non-Indian Mexicans (population in 1990: 247,534.). The Tarahumara Indians are the second largest ethnic group (1990 pop: 46,981.). Other indigenous peoples are the Tepehuanes and the Pimas, with populations of 2,907 and 378 respectively. Indigenous peoples are the poorest of the poor (high infant mortality rates, high tuberculosis and gastrointestinal disease occurrence, high malnutrition, many live in caves, etc.), a situation that cannot be accounted for only on cultural and traditional bases.

In 1993, this region represented approximately 70% of the forestry activity in the state. In 1995, forestry activities provided 3500 full time "permanent" jobs in the whole state (larger area than CCR), representing jobs for 4% of the Economically Active Population . However, since few people worked full time in forestry, but rather seasonally and part-time, this in fact represented a source of income for a greater population. Mining in the area generated approximately 630 jobs that same year. In 1997, there were 39 hotels in the region, which provided jobs for 312 individuals (T. Badillo, CIEE official, pers. comm., July 1997). Other tourism-related employment may be generated, but there were no official estimates in this regard.

The socio-economic needs of this region had been in the systemic agenda as well as the institutional discourse for decades, but no regional policy had been formulated that had substantially improved the livelihood of the communities (Foro Tarahumara, 1992). The general context of crisis in Mexican public finances in the previous decade and the difficult macroeconomic structural adjustments, which accompanied the renegotiation of Mexico's foreign debt, had not provided a favorable context for public investment in social and environmental programs.

Methods

We used a qualitative approach including semi-structured, in-depth, open-ended interviews; internal document analysis; site visits; and observations of SHG's activities and interactions. Between April 1996 and May 1997, 50 informants were interviewed in person, with several follow-up contacts by telephone or electronically (email). Individuals interviewed were from state and government agencies related to forestry, tourism, natural resource conservation, mining, rural development and indigenous affairs; timber and mining industries; professional associations of foresters and geologists; NGO's; local touristic operations; and the local mestizo and Tarahumara populations in the CCR.

The SHG's analyzed (Table 2.1) were defined at the beginning of the study, based on document review of the major policy initiatives and conversations with several government agency representatives, and later refined with interviewee input throughout the study. The sampling criteria were focused on including SHG's directly related to natural resource use and sought to include those directly involved in policy formulation, influential people in each sector and members of the local population --who traditionally have not had significant participation in natural resource planning. Because of the senior author's previous four-year work experience in Chihuahua, we had working relationships with many of the key players involved in activities in the CCR. Through snowball references and other personal contacts, we were able to contact major representatives in each SHG. Complementary information about some SHG's who were not extensively interviewed (e.g. local mestizos) was obtained through secondary sources (interviews and previous diagnostic studies of the region).

A category system with which to analyze the CCR land-use planning context was developed based on themes from the literature and those emerging from the interviews, as they were being transcribed. The transcribed interviews were imported into FolioVIEWS 3.1 Infobase Manager and coded with the previously developed categories. Through the 'query' function, all text sections under a same 'group' heading could be recalled and a "virtual dialogue" enacted by various interviewees on the same topic. A split-screen technique,

'highlighter' and 'jumplink' functions enabled the recording of the analysis directly grounded in the original data.

Trustworthiness of data and analysis was sought through member checks during interviews, triangulation of information from different sources, and the preparation of a preliminary results report for voluntary review by interviewees.

Results

Table 3.1 summarizes our findings about the degree to which each of the prerequisites for collaborative decision making were present in the CCR at the time of our study. Following is the evidence supporting each condition.

1. Multiple issues, multiple approaches to addressing the issues, and multiple stakeholder groups are involved. No one SHG can solve the issues on its own.

Several sectors and groups were involved in activities or initiatives relating to natural resource use in the CCR (Figure 3.2). Each sector was concerned with a diverse set of issues. Some of these were sector-specific, and some overlapped with concerns of other sectors. The different SHG's perceived the situation in the CCR from a variety of perspectives and had different approaches, as well as strengths/capacities to offer in possible solutions. In the interviews, stakeholders appreciated the complexity of natural resource management in the region and commented that actions at many levels would be required to address it:

FInd: "a whole set of actions is required";

FGov: "We all need to participate. The chain cannot break at one link … If we all get into it; this [illegal harvesting] is solved";

StGov: " … integrated: we have to integrate the actions [of various initiatives] toward a common end. What may be positive for one sector may be negative for another".

StGov: "you need to work at the large scale and at the small scale [simultaneously]".

They pointed out that economic and environmental concerns should be addressed in parallel:

StGov: "if you don't exploit the resource, you don't generate money to protect the resource. A middle ground is very important for [PA's]".

GovPA: "We have to manage at the community level. All is based on the income people can have. There is no conservationism with an empty stomach."

Some interviewees even made explicit the sensitive issues that are usually left out of management plans and policy:

NGO: "If you make a management plan ignoring corruption and ignoring illegal harvesting and ignoring poverty, ignoring the lack of training, well, that's what we have: laws…let's not say of the First World [but] of the 'Next Generations'! [They] don't apply at all. So you have to function … in the reality and the reality is very complex…".

FPro: "The new [forestry] law doesn't integrate that there is corruption; it trusts [too] much on good faith."

Clearly, the sectors and issues related to natural resource and land-use planning in the CCR is multiple, and SHG's recognize a multiplicity of approaches and participants needed to address these issues.

2. Shared Interests Shared Fears and Interdependence.

a) A wide range of interests were shared by many SHG's in the CCR. These interests fall within the categories of environmental and biodiversity protection, economic diversification, community health, and capacity building (Table 3.2). Some insights can be gained by analyzing the interests.

First, many interests were shared by the majority of SHG's (e.g. preservation of ecological richness and environmental quality, control of illegal timber harvesting, diversification of economic activities, encouragement of sustainable extraction of natural resources, etc.), even though several of these SHG's had not been traditionally viewed as adopting those concerns. Some interests were not mentioned by certain SHG's during the interviews. This omission to comment does not necessarily imply they do not share these interests because many interviewees had a sector-specific focus during their interview and simply may not have thought of some of the issues of concern to other SHG's.

Second, SHG's who might think have themselves as holding very different positions from other SHG's in fact shared many interests. For example, industrials, government agencies and local populations were interested in the creation of employment opportunities; conservationists and industrials were concerned about addressing violence and raising environmental awareness; and both protected area proponents and industrials wanted a strong, healthy forest industry.

Third, "possible conflicts" occurred in slightly more than one third of the total number of interests identified (17/44), and no one SHG had more than 6 possible conflicts. (Note that possible conflicts do not necessarily become conflicts.) Possible conflicts seemed to concentrate around indigenous land ownership and resource use, forest industry development, a few environmental issues, and tourism and regional development impacts. Finally, no one SHG was completely opposed to another on all issues.

Control of illegal timber harvesting was an interest explicitly shared by most SHG's. However, SHG's differed in their approaches to addressing this problem, ranging from punitive measures on illegal woodcutters and fines on sawmills and industry that accepted illegal timber, to community involvement in surveillance, awareness raising, and providing alternative economic activities.

Other shared interests were economic reactivation and diversification and ensuring satisfactory livelihoods for the local population, although differences in interpretation between SHG's existed and could be very significant. For example, food self-sufficiency was very important for traditional Tarahumara culture when considering 'satisfactory livelihoods', whereas income from employment may have been more attractive to most mestizos.

Most SHG's approved of continued natural resource extraction, though all emphasized it should be done in an orderly fashion. Most SHG's mentioned the difficulties and inefficiencies presented by the current land-tenure system (the 'ejido'), but the range of opinions and ways to address the issue differed greatly.

Practically all SHG's explicitly or implicitly felt that there should be more training, either for them or for other SHG's. The type of training recommended varied from surveillance and policing, to natural resources management, through administrative tasks to consensus-building and mediation. Finally, local involvement was an interest shared by many groups, but the degree and forms this involvement should take could vary for each group from simple involvement in responsibilities such as surveillance, to management responsibilities and decision-making rights.

b) Shared fears. Groups expressed a significant number of fears and might have been reluctant to collaborate because they assumed that these fears meant an equal number of potential conflicts. However, the number of potential conflicts that these fears imply is reduced if we identify which of these are shared, which may be misperceptions of others' views, and/or which are irrelevant to other SHG activities. Many fears were shared across groups and became coalescing incentives (see below). Some fears were based on observation or past experience, such as fear of social unrest/emigration if livelihoods cannot be maintained in the CCR. Some fears may have been the consequence of misunderstanding, such as the perception that a Protected

Area (PA) would obstruct economic activities (few parties had heard the PA proponents' message that there is no conservation without addressing economic needs). Finally, some fears were specific to the activities of each SHG, and therefore not conflict-creating with other SHG's, such as industry concerns about the market value of their products.

Shared fears were found in many cases to be coalescing incentives at the SHG, sector and intersectoral levels. At the SHG level, the fear of losing permission to explore and establish mines through 'imposition' of a PA brought the otherwise disjointed private mining sector together (through the professional associations of geologists) to protest and express their concerns to the agency proposing the PA (SEMARNAP). In fact, they were the only non-governmental group that self-presented itself to the agency with comments on the PA proposal.

At the sector level, the worries about the poor health of forests, forest management, 'abandonment' of the forestry industry and constantly changing forest policies were some of the main reasons diverse and not traditionally collaborating SHG's from the forestry sector came together to develop the State Program for Sustainable Forestry Development (SPSFD).

An example of an intersectoral level collaboration fueled by a common worry was an instance during the initial stages of the Model Forest project, where the discussion leader kept reluctant SHG's --divided by 'institutional jealousies' and 'sectoral interests'-- at the discussion table by repeating the common threat ('suicide') they all shared if they didn't work together:

NGO: "Do you want to continue they way we're going? We're going to suicide. If you don't want that, then we have to do something. What do you put in so that suicide doesn't happen? What do you put in to help?"

c) Interdependence was recognized by the SHG's in different ways. Some were explicit in stating it during interviews, while others expressed it in their general policy initiative or actions taken. Following are some examples of interdependence that became evident through the analysis.

1. Tourism was one of the most explicit sectors in identifying its interdependence with other sectors. It planned to sell landscape and required sufficient quality and quantity water supply for touristic infrastructure, and thus it depended on environmental and landscape protection. Although it identified dependence on landscape and environmental quality, it did not seem to identify interdependence with the human actors that affected those variables. The tourism sector also explicitly recognized its need to attend to social issues (i.e. a dependency on social well-being) for tourist attraction and to justify low-interest international loans. Tourism agency officials were particularly interested in avoiding circles of poverty around touristic sites.

Inasmuch as the Tarahumara culture was to be part of the marketed attraction of the region, tourism depended on this culture's healthy continued existence for its own success.

2. Conservation interests (NGO's, PA proponents, landscape marketers) depended on several other sectors to achieve their preservation goals. They depended on the forestry sector to control illegal harvesting and deforestation; on government to provide a policy and legal context for conservation/protection (as well as for funds to enforce it); on local support; and on coordination with researchers.

3. NGO's depended on other SHG's for funding and sometimes even for the specification of programs to implement. As a group, they experienced SHG interdependence regularly due to their networking, fund-seeking and local involvement emphasis. Perhaps the interdependence they were least aware of is NGO-NGO.

4. Local Mestizos depended on job and income opportunities provided by other SHG's --including opportunities provided by the narcotic production sector, which in turn affected wages and motivations for participation in other activities. Inasmuch as they depended on employment from natural resource extraction, they depended on the long-term continuity of these activities, and thus on sustainability of natural resource management. By virtue of living in the region, they depended on a healthy environment, as well as on public services to maintain/increase a high standard of living.

5. All industry (Tourism, Forestry and Mining) seek external investment, and in this sense they depended on a good business climate, which would include social well-being. They depended on government for permits, and they were affected by territorial ordering processes that might affect the geographic range of their activities. They depended on adequate roads and communications to remote areas in the region and on a reliable work force. Long-term and secure accesses to the resources were important to justify their capital investments.

Forest Industrials, furthermore, depended on good working relationships with forest owners to set up long-term contracts (according to one Forest Industrial interviewee). Their industry depended on the maintenance of healthy forests, and they explicitly realized that all SHG's must be involved to control illegal timber harvesting.

6. Government agencies related to forestry and environmental protection depended on cooperation with other SHG's to implement policies, since they had few economic and human resources (according to FGov interviewee).

7. Technical Forestry Services depended on government for permits, on owners for contracts, and on sustained production for continued work.

8. The government politicians were interested in developing the CCR to increase visibility of the state of Chihuahua, attract investment, avoid the strain of periodic emergency funds needing to be channeled to the CCR, and maintain social rest --particularly after indigenous uprisings in Chiapas. Furthermore, since water scarcity was a growing issue in the Chihuahua lowlands, people may become aware of the hydrologic recharge function the CCR fulfills, and exert pressure to attend to the watershed protection.

All stakeholders depend on clear legal issues of land tenure to implement policies/achieve their goals. All must comply with natural resource legislation, even though as of yet it is not very well enforced. The number of interests and fears and the degree of interdependence shared by CCR SHG's suggest that it is in their self-interest to seek collaboration.

3. Willingness of groups to collaborate with others.

At the time the data for this study were being collected, policy initiatives were incipient and SHG's were generally not aware of the breadth of sectoral initiatives being designed for the CCR. It was thus difficult to systematically obtain explicit comments regarding their willingness to participate in intersectoral collaboration. However, interviewees made comments about collaboration with other SHG's and sectors, providing insight about their opinion on these matters. Following, we (1) present the incentives and disincentives affecting SHG willingness to collaborate; (2) describe which groups were more interested in collaboration; and (3) provide interviewee opinions of whose responsibility it was to foster collaboration.

The incentives and disincentives for collaboration mentioned by interviewees are listed in Table 3.3. These incentives are those that influenced the SHG's at the time of this research. Because the incentives and disincentives were not present to the same degree for all SHG's, their interest in a collaborative process at the time varied.

As far as understanding the implications of collaboration and seeing the need for it, government agencies related to conservation (at state and federal levels) stood out for their interest in collaborating with the widest range of stakeholder groups (perhaps because they realized conservation was not possible unless economic and local activities were considered). NGO's tended to be most explicit and seemed most knowledgeable, in terms of identifying the need for multiparty collaboration (emphasizing local involvement), ways to achieve it (e.g. facilitated consensus-building processes) and associated complexities (e.g. longer term processes).

The TDMP proponents had been very active in eliciting collaboration with agencies that provided financing and infrastructure required for the structural aspects of touristic development, but they had not yet established a firm working relationship with the forestry, conservation sector or NGO sector which would address the environmental and social aspects of touristic development (even though it had established some single pointed contact with certain SHG's in these sectors). From interviews with Tarahumaras and Indigenous Specialists, it was clear that these groups would be interested in participating in collaborative decision making. However, during 1996, they had not yet been invited to collaborate in any of the policy initiatives.

Even though they could be motivated to participate in collaborative land-use planning, few groups considered it their responsibility or role to actively enable such a process to occur. Mostly, the responsibility to foster the process was given to the 'government'. When interviewees specified which agency in the 'government', they referred to either the State or Federal environmental protection agency or both. NGO's were somewhat more self-sufficient in feeling that they could direct such a process, but they still gave the 'government' the responsibility to provide the funds for it. Fortunately, many government employees also saw this as a 'government' responsibility.

4. A general institutional context that is conducive to SH involvement.

National and state-level policies clearly stated that society at large should be involved in various aspects of decision-making. The documents of all 4 government initiatives recognized the interdependence between natural resource conservation, economic use of natural resources and social well-being. They all recommended intersectoral coordination, and internal documents of some agencies and organizations strongly recommended involving local communities in the activities that they were promoting.

Although official documents strongly supported collaborative work between SHG's and local involvement, in practice this rhetoric had not been translated into action at a scale corresponding to the breadth and goals of the proposed policies. Until summer 1996, concrete mechanisms to integrate in practice the work of the various sectors related to natural resource use (forestry, tourism, conservation and mining) had not been identified or developed, and actual coordination was not occurring.

5. Timing is appropriate.

5.1. Issues are defined well enough for purposes of discussion and decision. Government agencies were aware of a tourism plan but community members were not necessarily aware. The rest of the plans --Forestry, Protected Area, and Urban Development and Territorial Ordering-- were known practically only by those involved in their design. The issues were thus not known by all SHG's,

but could be considered to be ripe for decision in that the thrust of each plan was well-defined and therefore coherent enough to be discussed in a broader context. No plan was far in implementation, but decisions were already being made.

5.2 Enough time exists for a collaborative decision to be reached. The time ranges for initiation and implementation of all the initiatives was about 10-20 years. This time span and the fact that there was no urgent crisis to be addressed provided, in theory, a good opportunity to allow for 1-2 year collaborative planning processes. However, there are shorter time limits set by political and budgetary constraints and lack of experience in participatory processes.

State Government elections were approaching for 1998, and preparations for political campaigns had begun by the end of the research period. In political terms, there was haste to impressively begin great initiatives, such as a Megatouristic Plan for the CCR, before the current governor left office.

Regarding budgetary constraints, a government employee who strongly recommended consensus building noted:

[Participatory planning] is good, but not if it takes two years. In two years, the 500 pesos you had assigned, you already spent them on another community that had a plan right away. You know [the way things are] here... if I've got [money] and I don't use it quickly, it goes to another budget item. [Let's find out] what they want, but kind of quickly. You make some questionnaires, a survey, talk with the people, look at the tendencies, generate consensus, and vote on the options they suggest ... So, some [participation], but not an exaggerated time.

Finally, even agencies that explicitly considered intersectoral collaboration and local involvement in their calendar of activities (e.g. RUDETO proposal) estimated only short time spans --three months.

6. There is capacity for collaborative decision-making: information and experience exist.

6.1 Information. Much baseline data has been collected and organized on socio-economic features of the region, natural resource base, and services and infrastructure needs, particularly by the Tourism agencies, but also by the Forestry initiative, the PA proposal, and Government Indigenist agencies, among others.

6.2 Experience. Previous efforts in collaborative work existed in Chihuahua, both within and without the CCR. Some experiences had been very good, some generated mixed comments about the process or the timing and some had been

described by interviewees as bad. Most cases had some elements of success and some elements of failure. Due to these previous collaboration exercises, skills and experience could be found in the region to be drawn and built upon.

The types of problems and factors of success that have been encountered in the set of collaborative experiences are listed in Table 3.4. The problems are the elements that would need to be improved upon for a good collaborative process to occur, and the challenge is to bring as many factors of success as possible together into one (or all) processes.

The importance of resources and/or a mandate was made clear by actors in two of the better collaborative experiences at that point (1996):

FInd: "In the Regional [Forestry] Council it's all niceness, all understanding, all non-aggression, but the results we have are not the expected [ones] due to bureaucracy, lack of infrastructure, problems with the law. So then one says 'what did we come for?' We point out the problem, try solutions; offer cooperation…The point is that there are no results."

NGO: "Model Forest has enough money to pay the trial and error [involved in trying to implement and demonstrate sustainable development] and that's a high cost…"

There were also positive comments by interviewees about the existing experiences, pointing toward an enthusiasm that could be built upon.

Find: "… as far as 96-97 I see … continuity in this. I do see continuity because; mainly it's a 'line' that the Federal Government has to decentralize. And [the Federal Government] is investing time in pulling us, pulling us, pulling us to inform us of what it is going to give over to us. I feel that [for] the next two, three next years this will continue." 7. There is capacity for collaborative decision-making: intrinsic features of SHG's and sectors.

Table 3.5 displays the intrinsic features of CCR SHG's and sectors that related to their capacity to participate.

7.1 Homogeneity. All SHG's studied were heterogeneous; even those that one might least expect. For example, the Tarahumara communities were described by the Indigenist Specialists as very independent of one another and varying greatly in their degrees of traditionalism, incorporation of mestizo cultural elements, cohesion, participation in forest management and perspectives on resource extraction. Government agencies varied greatly according to their sector, their state or federal status, and even within agencies, corresponding to the hierarchical and geographic position (Mexico City vs Chihuahua) in which they found themselves. In both the forest and mining industry (but especially in the latter), there was a clear difference between large and small industrials.

According to several mining interviewees, depending on the issue, large and small industries might not even feel part of the same interest group. NGO's were very heterogeneous in their specific interests and local approaches even though they shared certain working styles and broad interests.

7.2 Internal Cohesion. Despite this ubiquitous heterogeneity, some SHG's were more structured than others around decision and actions. Government agencies stood out in this regard, since they had specific functions to perform and clearly established decision-making systems. Other groups with strong coalescence around actions were the forestry professionals, certain sectors of the mining sector and the traditional Tarahumara communities.

7. 3 Capability to identify a representative. Most SHG's had representatives through their structure or nature: government agencies, professional associations, forest industry associations, small mining companies had easily identifiable representatives. Large mining companies were represented by the geologists they employed. NGO's would be capable of identifying a representative if they had an effective discussion forum and felt it was 'representative'. The groups in need of a process to generate representatives, at the time of the study, were the local touristic establishments, local mestizo population, and perhaps the non-traditional Tarahumara communities.

7.4 Functional Decision-making Mechanisms. Government agencies, again, stood out in this regard, where the administrative structure defined decision-making mechanisms. Functional decision-making mechanisms were also apparent in industry associations, which meet on a regular basis; and traditional Tarahumara communities, which used the Nahuésari. In terms of functional decision-making mechanisms, the local mestizo population may have been the SHG at greatest disadvantage due to its class and interest stratification, geographic dispersion, sense of individuality (in contrast with the Tarahumara community solidarity), lack of motivation, and apathy due to unemployment and rare opportunities to make meaningful decisions about their lives (FPro informant, pers. comm.). Local mestizos had the least effective forums for joint discussion and decision-making mechanisms. The ejido assemblies were universally characterized by interviewees as ineffective, undemocratic, manipulated forums with little participation.

Table 3.5 portrays those features at SHG level. However, because much of the land-use planning negotiation could focus around sectoral rather than SHG interests, some interesting observations on sector-level cohesion and functionality of decision-making follow.

As a sector, Forestry --FInd, FGov, FPro-- had not included the local population to a degree comparable to other SHG's, particularly the Tarahumara ejidatarios, in its Regional Council. It had moderate integration of research and NGO sectors, and practically no contact with Tourism, Conservation, and Mining

sectors, though these activities were included in their concept of "multiple use" forestry.

Although NGO's shared many interests (conservation, community development and human/indigenous rights) and theoretically clearly identify themselves as a group, in fact they were not cohesive. This may be because they tended to be small, with localized capacity, specific areas of activity with little overlap (even though their general interests were shared). There was also a significant degree of ignorance about each other, as well as a sense of competition, unfortunate power plays, and past negative interactions. Finally, there had not yet been a need or sufficient reason for working together as a sector.

The noteworthy activity in the Tourism sector was clearly agency-led. The agencies had sophisticated planning resources and strategy. Decision making was functional, but the agencies set the goal, the agenda, the strategies, and the steps to be taken. Other groups were involved as the agencies decided, and those groups not involved by the agency (local establishments, NGO's, other governmental agencies, etc.) had vague understandings of what was happening. As a SHG, local establishments perhaps shared among themselves the interest of attracting visitors but demonstrated incipient and uneven collaboration.

The conservation sector --GovPA, certain StGov and NGO's with conservation interests-- was a relatively weak sector, despite having the legal mandate to protect the environment. In the Federal agency, there was inconsistency between proposals at the state office and the Mexico City office. The state office had no funds for developing a Protected Area (PA) proposal. In the State Agency, the Ecology Department was not involved in the CCR, although the Urban Development Office (to which Ecology belongs) had been involved in parts of the Tourism project, to which it had been invited. The federal and state agencies had a poor working relationship, so as a sector they were in a weak position to lobby for conservation interests with other policy initiatives.

Large and small companies were two distinct groups within the mining sector, with different needs, interests and decision-making mechanisms. The small companies were very well organized and had good and pro-active working relations with the state government and federal lending institutions. The large companies acted mostly independently. The State Government had no mandate to control mining companies, because like forestry, this activity had traditionally been of federal responsibility. Despite its non-cohesiveness as a sector (in interests or decision-making mechanisms), this sector had been the quickest to act of its own accord, standing out it as a very capable group in generating response to government policies.

Internal cohesion and functionality of decision making varied significantly between SHG's and sectors. Contrary to the expected outcome, and as

demonstrated by the mining sector, these variables did not necessarily correlate with capability to act and respond to initiatives.

7.5 Experience in Decision making. Government agencies had always been making policy decisions and thus had experience in decision-making. Forestry Professionals used to be employed by government agencies and therefore also had significant experience in decision-making. SHG's who had been recently involved in decision making included industry and NGO's. Once again, local communities were at the greatest disadvantage. The non-functionality of ejido assemblies as forums for joint deliberation has already been noted. Some ejido leaders had participated in meetings with other SHG's. The traditional Tarahumara communities had much experience in making internal decisions, but there was little experience of involving Tarahumara in regional scale decision making. In general, both ethnic groups of local population were not very experienced in interacting with other groups for regional scale land-use decision making.

8. Power is balanced at the negotiation table. There is a level playing field.

Human, technical and economic resources were not equivalent among CCR SHG's. Agencies and industrial or trade associations had access to funds from government budget or members' dues, professional expertise in resource management, and equipment and tools to inform decision making. The local population groups did not have access to this type of resources and were at the greatest disadvantage.

Discussion

Can a collaborative process occur?

Several prerequisites critical for establishing a collaborative decision-making process existed in the CCR. These included the presence of multiple issues, approaches and SHG's; shared interests, fears and interdependence; an institutional and policy context conducive to collaboration; enough time for collaborative decision-making; and availability of information and experience. Other conditions important for collaboration existed only in part --either for only some SHG's or to a limited degree for each SHG-- and would need to be addressed to provide an environment conducive to effective collaboration. These included the willingness of groups to collaborate; consensus about timing and length of the decision-making processes; and the imbalance in SHGs' intrinsic capacities to negotiate and access to resources to do so effectively.

Willingness to participate and perception of timing are critical factors for effective collaboration, but in contrast to multiplicity of issues and interdependence, they are amenable to change before the process begins. By evaluating their BATNA's, becoming aware of shared interests and

interdependence, learning of options for mutual gain, deconstructing stereotypes of other groups, and even being offered resources or other incentives, willingness to participate can change. Similarly, the perception of timing and the acceptance of a medium or long term consensus-building process can also change as parties understand the purpose and benefits of collaboration and as they gain experience in this domain.

The need to balance the power and capability differentials is characteristic of most public negotiations. Rarely will a set of SHG's be found that are balanced in these aspects. It has been recommended that this be addressed by organizational support, training, and even allocation of joint funds to aid groups unable to pay certain collaboration-related costs (e.g. travel) .

In the following section we discuss highlights of some other prerequisites as they were manifested in the CCR.

Interest Analysis

Stakeholder interest analysis is useful as a diagnostic tool for evaluating collaboration possibilities. If any benefits are to be derived from the presence of shared interests, these need to be made known to SHG's involved; the SHG's must recognize them and perceive that joint gains are possible through them. In the CCR, we observed that no one SHG is completely opposed to another on all issues, and thus "locked" positions need not be taken by the parties across the board. Instead, the conflicts could be addressed on a case by case basis.

Conversely, even interests that are not shared provide the raw material for 'trades' in space, time, magnitude, and other dimensions, generating yet more options for joint gains. For exchange of interests, it is crucial that the multiple interests of each SHG be teased out. Fears of SHG's may be perceived as constraints to collaboration, however, shared fears may be coalescing incentives.

The consensus-building effort does not end at identifying shared interests or shared fears. These only set a common ground. Consensus building is still necessary once they have been identified. As negotiation becomes more specific, differences within the shared interests make themselves evident. For example, we showed how CCR SHG's agreed on the need for satisfactory livelihoods for local communities and how that could have different meanings for different groups. We also showed that many SHG's noted the importance of training, but the type of training, for whom, and financed by who would be issues for discussion during a collaborative decision-making process.

These various interpretations and solutions need not discourage collaboration. Rather, they add possibilities to the ways that are pursued to achieve joint goals. In fact, variations represent the 'multiple approaches' that 'generate

space for joint-gains' and might be seen simply to represent more specific levels of negotiation and joint problem-solving.

Interdependence

From the results of this research, clearly all SHG's are dependent on each other, because each group has the possibility of obstructing the process for others. Local unrest can affect resource access and investment security; industrials can stop employing; tourism can back out and discontinue an important alternative economic activity for the region; conservationists can generate international publicity and team up with locals to stop development activities; and government could withdraw its support.

Our findings suggest that interdependence may exist, but whether it leads to a collaborative effort may depend on: a) awareness of the interdependence and b) how well groups market themselves as having an impact on others. The relationship of tourism with other natural resources user-groups provides an example. Although tourism recognized its dependence on landscape preservation and environmental quality, the TDMP proponents did not appear to need to plan collaboratively with the conservation sector, the forestry and mining industries, or the local population in order to successfully pursue their own plan of action. Besides considerations of time-efficiency and fear of having to compromise, we hypothesize a combination of the following factors as accounting for this behavior:

1. TDMP proponents had enough political support from the nation's president and the state governor, and enough faith that they would greatly benefit the region, that they felt other initiatives would adapt to their own plan. Thus, early negotiation with other initiative proponents was not necessary.

2. TDMP proponents felt that the local population did not need to be involved in the planning stage, because they would benefit from the TDMP, and would gladly accept all it promised to deliver.

3. TDMP proponents planned to involve some of these groups later in the process, as members of the Copper Canyon Advisory Council that would be formed to give recommendations on the implementation of the Plan.

4. TDMP proponents were not aware of other natural resource use initiatives or of the interdependence they had with other natural resource users for the maintenance of environmental quality. In May of 1997, they were not aware that there was a State Forestry Plan (State tourism official, pers. comm.). By July 1997, the mining and forestry sectors had not been involved in the Copper Canyon Advisory Council. Thus, the Tourism sector was aware of its dependence on environmental quality but not of its dependence with other groups who also affected natural resources in the region, and what occurred

with them. These groups, however, had not made their potential impact on touristic interests evident to the TDMP, although they likely had some (e.g. illegal timber harvesting is a problem the whole forestry sector was trying to address, and it would affect touristic interests, even if a protected status was decreed in the region).

Policy Context

Despite policy conducive to and even explicitly stating the need for intersectoral collaboration and local involvement in decision making, in the CCR land-use initiatives there was little action in those directions. All policy initiatives studied described themselves as "integral." However, it is clear that no sector had the capability --nor did they accept the responsibility when directly questioned on the issue-- to integrally address all the social, economic and environmental needs that might ensure sustainability. In order to satisfy the ambitious goals of the initiatives and the range of interests of SHG's in the CCR, concrete mechanisms and required resources to integrate in practice the efforts of various sectors and local involvement need to be identified, refined and strengthened.

The observed inconsistency in most initiatives between what was written and what was done in terms of stakeholder involvement in design of policies could be due to several conditions, which would need to be researched in future studies. We hypothesize the following: a) SHG's leaders (more than their staff) are not aware of the importance and need for collaborative decision-making; b) current decision makers perceive only the time and resources involved in collaboration; c) current decision-makers may not be held accountable in 10 years' time if policies are not successful due to unresolved conflicts of interest, thus it is not worth their effort to solve potential problems early; d) there is no budgetary item for collaborative planning in agencies, so even though they have the mandate and might have the intention, they do not have the resources to pursue it; e) agencies that would like to see broader collaboration lack the resources and high-level political support to implement it on their own; f) there has been a lack of broad land-use vision and knowledge of other initiatives being proposed or other activities with growing potential; g) current decision makers are reluctant to engage other groups in planning, particularly communities who might then request other directions for investments; h) current decision makers do not realize there is a range in the degrees to which stakeholder involvement can take place (it is not all or nothing); i) current decision makers have little experience in fostering collaboration and do not know how to go about it.

Timing

In the few occasions in which CCR policies considered local involvement in decision making, they suggested time frames of a few months --very short

compared to the much longer time frames recommended for participatory processes in general. This may be due to a lack of experience with and understanding of participatory processes. However, budgetary constraints and political timing limitations also have played an important role.

Administrations find themselves under the pressure of demonstrating successes in 3 to 6 year periods. This is often perceived to conflict with the needs of participatory planning processes, which may take longer than political administration terms.

Political timing constraints on collaborative processes may be addressed by involving the rest of the SHG's that are independent of elections and administrative periods and to gradually give them greater influence on the process. If the rest of SHG's are organized to demand a participatory decision-making process, then the public administrators will respond, since they are responsive to incentives and threats. Therefore, even if political support is not found in key agencies at a particular moment, the awareness raising with the rest of SHG's can continue throughout several administrations, until SHG demands for participation are great enough to merit a public administrators' support.

Capacity in the Context: Information and Experience. Information. By mid-1997, the various policy initiatives had collected sufficient background information that it would be efficient for them to begin working on the same databases, also referred to as joint fact-finding. This would: a) avoid duplicating efforts while ignoring knowledge gaps; b) improve accuracy of information; and c) allow additional information needs to be jointly defined and collected. Credibility of data for all SHG's would be improved and good working relationships established.

Experience in collaboration

At the time of the study, there were sufficient success elements in previous collaborative efforts in Chihuahua, which might be combined into a CCR collaborative land-use planning effort. There was some SHG enthusiasm, which could be capitalized upon.

Capacity in the Actors: Intrinsic Features of Stakeholders and Sectors. Internal cohesion and functionality of decision making varied significantly between SHG's and sectors. Contrary to the expected outcome, and as demonstrated by the mining sector, these variables did not necessarily correlate with capability to act and respond to initiatives. The right people, and the right incentive or threat may overcome the importance of cohesion and functional decision making. Thus, favorable "capability analysis" does not necessarily translate into actual participation. It examines intrinsic features of

SHG's that could facilitate participation possibilities, but extrinsic factors (e.g. incentives, context, etc.) can influence the actual outcome.

Assessing Viability: Considering Constraints to Collaboration

To assess viability of a collaborative process, not only the presence of favorable conditions, but also the absence of powerful constraints must be identified. The research for this paper did not explicitly focus on the latter, but some observations on this topic can be made from the data.

Situations that are not conducive to collaboration include cases in which: a) there is an emergency or crisis which needs immediate action, and thus not enough time; b) there are few options for solutions; c) legal ruling is needed; d) the parties are too polarized; e) there are basic ideological differences; f) fundamental human values/rights are in question; g) there are serious power differentials; h) there are serious representational problems; i) there are feuds, violence and other historical factors; j) there have been repeated failures of interventions; or k) high costs of collaboration preclude participation .

The CCR case did not present features a, b, and c. Polarization (d), ideological differences (e) and fundamental values (f) do characterize much of the historical Tarahumara-forestry sector interactions (and possibly many of the Tarahumara-industrial/commercial interest interactions in general). It would be necessary to determine whether the promises of collaboration, the possibilities for it presented in this study, and the design and facilitation of a fair process, could overcome this historical polarization. Indigenous communities and industrial interests have been able to develop effective consensus-building processes elsewhere, despite historical conflict (e.g. East Ontario Model Forest, Lloyd Benedict, 1996, pers. comm.). It has been possible through collaboration to work around ideological differences by focusing on specific actions and goals of mutual interest. Fundamental values are involved in any interaction between different worldviews, as would be the case in any Tarahumara-mestizo interaction. In a collaborative process it would be important to allow space for each worldview to exist. What is implied by this "constraint" is that fundamental values conflicts cannot be negotiated.

There are power differentials (g) between SHG's, particularly between local communities (especially indigenous) and large commercial and industrial interests. Communities may present representational problems (h). These two issues can be addressed through training, organizational support, capacity building and a well-designed collaborative process.

According to interviewees, violence (i) existed in the CCR. Informants associated violence with certain aspects of the narcotics sector, with caciques, and with conflicts between timber extraction interests and indigenous peoples.

Whether violence is so great that it would impede a broad collaborative process is not clear, because the groups exerting violence may not have regional impact and/or their interests may be able to be addressed through a collaborative process with local focus. This would need to be determined, but perhaps can only be determined as such a process is launched. Interviewees referred to repeated failures in collaboration (j), particularly in the forestry sector, but there were also many success elements in various collaborative efforts in Chihuahua which could be built upon.

Finally, any collaborative effort requires the investment of resources. High costs (k) are involved in the CCR, because of the broad geographical range and the fact that many SHG's live in Chihuahua City. The costs must be compared to the investment in the policies being promoted and to the cost of delay or non-implementation, if serious conflict arose.

It would be unrealistic to say that no conflicts of interest existed in the CCR. Some clear conflicts were the following:

1. Worldviews and associated historical social tensions;

2. Cacique control and community empowerment;

3. Potentially various resource uses at specific locations;

4. Extreme profit seeking and sustainable resource use; and

5. Power differentials were great and influential SHG's could block the collaborative process.

The first three items could be addressed through negotiation strategies. Item four probably cannot be addressed except by integrating direct economic disincentives to resource depletion. An example of the fifth item is the influence of the narcotic sector. If that sector is powerful and necessary economically, but cannot be involved in collaborative planning directly, then the process may be doomed to be incomplete or fail. These types of issues need to be evaluated.

Conclusions

Many conditions critical for collaboration is present in the CCR land-use planning context. Insurmountable constraints are not distinctly evident. Based on these findings, effective collaboration in the CCR appears possible, but it will depend on addressing those prerequisites not completely met, namely: increasing SHG understanding and awareness of initiatives; increasing willingness to participate; generating consensus on a time frame; and addressing the 'capacity' and power imbalances. Addressing those will require

great political will, investment of resources, and being convinced that collaboration is worth it. Fortunately, however, these conditions can be adjusted relatively easily through the collaborative process. This would not have been the case if the prerequisites absent had been shared interests or interdependence, for example.

This paper presented an example of a diagnostic tool to help decision makers evaluate whether a collaborative process may be feasible. The use of this type of diagnostic tool has been previously recommended. We have found it appropriate to assess whether conditions needed for a collaborative process are present, and thus whether collaboration is advisable to pursue. However, the tool has limitations, and we agree with Grimble and Chan (1995) that it must be complemented with other information. Participatory processes are very complex. Factors beyond the prerequisites analyzed here may significantly influence the feasibility for collaboration.

The actual occurrence of a collaborative process does not necessarily follow from the presence or absence of prerequisites for collaboration. A collaborative process might be triggered by a crisis, even if many prerequisites are not satisfied. The example of the mining SHG, presenting a united front to SEMARNAP when its rights to use explosives were being threatened, illustrated that internal cohesion and functional decision-making mechanisms were not essential in achieving prompt action. Some SHG's may not satisfy certain capability criteria, yet is very efficient at reacting to policy initiatives. In many cases, effective collaboration has been achieved despite the lack of conductive policy, due to extraordinary leadership. Alternatively, the conditions may be present but no collaboration occurs. Interdependence may exist, but its potential for collaboration may not be realized due to lack of vision or lack of marketing. Shared interests may exist, but their potential may not be realized if they are not communicated. A favorable policy environment may exist, but without decision makers' understanding of collaboration or resources to implement it, it will be to no avail.

Assessing the possibility for collaboration in a process that is only beginning presents some challenges. Events and circumstances are rapidly evolving. Results assessments are quickly outdated. At early stages of a policy process, initiatives may not be sufficiently defined and many stakeholders may not yet be aware of them, so certain data are not obtainable. Timely reports and on-going approximations may address these challenges.

Finally, no ex ante appraisal can be final, particularly in processes involving a great number of SHG's. Much is discovered, experimented with, and improved upon as the collaborative process unfolds, particularly with the input of all the parties. Furthermore, negotiation theory holds that commitment of the parties to a collaborative process is generated to a large degree by their active participation in the process of discovery. Based on these observations, we

believe that involving SHG's in fine-tuning the results of these diagnostic tools is essential, not only for accuracy, but also to help affected parties evaluate their commitment to a collaborative process.

CHAPTER FOUR

INCENTIVES FOR COLLABORATION: CREATING OPTIONS FOR MULTIPLE GAINS.

Introduction

Prerequisites for a collaborative process in natural resource and land-use planning exist in the CCR and are satisfied to degrees that make collaboration an option worth contemplating. The previous chapter showed among the prerequisites that were only partly satisfied in the CCR land-use planning efforts was willingness of SHG's to collaborate with others. One way to address this issue is to make parties aware of options for joint gains created by exchanging or trading interests. In this chapter, I present possibilities for exchanging interests and highlight the tools and reasoning behind exchangeable interests. This should demonstrate the principle of multiple gains and show parties how their group interests might be served through a collaborative process. The content of this chapter is drawn heavily from CCR SHG's interviews.

Examples of Exchangeable Interests

Possible options for multiple gains became apparent through the stakeholder interest analysis of the CCR data. These possibilities are briefly sketched below, with the goal of providing CCR SHG's with specific information emerging from this research that might aid in their decisions regarding whether to pursue collaboration. The examples illustrate exchangeable interests that either were directly recommended by interviewees or emerged from the interest analysis. They intend to stimulate CCR SHG reflection and show that many interests may be satisfied simultaneously. However, creativity should not be limited to what is presented here. These are only initial ideas, and more could be developed as SHG's themselves come together and are willing to trade on issues of differing value to them.

1. Zoning (negotiating in space); Local negotiation with state-level perspective.

State Level Zoning:

a) The State Forestry Plan could analyze its production potential and protection needs at the state level; zone the prime, commercial production areas throughout the state; and decrease extraction intensity (or halt extraction completely) in certain areas that would be designated for indigenous management, environmental protection, or tourism, particularly in the CCR region. In 'exchange' for decreasing extraction in some areas of the state, government funds (which already exist) could be channeled to invest in new technology and intensify silviculture in the selected prime commercial areas.

This state-level forestry zoning would be a first step in exchanging interests. Since there are also timber-associated interests within the CCR, and presumably some extraction would still occur in the region, a smaller-scale zoning effort would be necessary at that level (see below).

b) Mining companies are actively exploring in the entire southern Sierra Madre Occidental of Chihuahua. The CCR overlaps only in certain sections with areas of high-volume mining interests. Because exploration implies great costs and risk for mining companies, they would benefit from knowing (before they begin exploration) which areas of the CCR may be later restricted for extractive uses due to touristic or ecological priorities, and save the time, money and effort of exploration.

CCR-Level Zoning:

The CCR is a complex web of areas of overlapping interests (indigenous, touristic, conservation, timber, and some mining). At this level, each sector could develop a zoning plan and then all zoning proposals would be discussed jointly to search for multiple gains. It would be advisable that all zoning efforts be done in parallel and discussed jointly before major investments are made.

Indigenous communities might spatially analyze the areas in which they live and consider traditional forest management in certain sections, in exchange for commercial management in others. Tourism interests could zone the preferred areas for landscape preservation. Conservation interests could identify strategic areas for habitat and environmental protection.

If local timber interests (many of them held by local 'caciques') are effectively to decrease extraction, alternative sources of income for them should be developed. The tourism sector could make special, targeted efforts to train and integrate them in planning and investment in the touristic sector. The state forestry sector could also provide specific funds or resources to help these people modify their activity or their location in ways more appropriate for other zoning efforts. Although 'caciques' may not be ideal, desirable or legitimate leaders, they are a living force in natural resource use and as such, their interests must be taken into account to develop implementable zoning plans. If they are not considered, they may continue to harvest timber, even if it is regulated against.

This example shows that:

i) In order to creatively exchange interests, SHG's need to be given resources and/or guarantees, e.g. resources for silviculture and new technology for state and CCR timber interests; for indigenous communities, the assurance that some areas can be traditionally managed; for caciques, a guarantee of being integrated into another economic sector, if they abandon their sawmill and

truck activities which have been great investments to them; and security for the mining companies, that they will be able to mine where they find appropriate mineral conditions, as long as they avoid exploring in designated CCR areas.

ii) Having a state-level perspective to negotiate around initiatives at specific locations provides flexibility required to generate options of joint gain. iii) SHG's need face-to-face, map-to-map interaction in order to express, clarify and work upon their interests.

iv) There must be something to gain by each party, and parties should understand that they need not necessarily lose anything by others gaining; in fact they might gain more than they expected (e.g. additional support and infrastructure for resource extraction in prime areas, better investment opportunities in new activities, etc.).

2. Exchange of goods and services for other benefits. a) Natural resources of many communities could be sustainably managed for consumptive and non-consumptive purposes in exchange for developing community interests. This applies for all policy initiatives: initiative proponents can consider promoting their activities (tourism, conservation, resource extraction, etc.) in exchange for training and employment for local people, as well as opportunities for meaningful local involvement in planning and implementation of the activities, or other projects that communities identify and choose. This approach would imply dedicating policy resources to community capacity building, joint decision-making processes and funds toward community-chosen projects. Both policy proponents and communities would benefit by having their interests addressed, and furthermore, alliances would be created that would facilitate effective and long-lasting implementation of initiatives.

Some examples of specific exchanges in the CCR might be:

i) Provide training in forest management for locals, in exchange for community support in illegal harvesting control (what some interviewees called 'participatory surveillance').

ii) The Tourism Development Master Plan (TDMP) is receiving funds from the InterAmerican Development Bank. Better interest rates on these loans are conditioned on the generation of social benefits derived from the investment. By working with communities, the Tourism Master Plan proponents could easily justify social benefits.

iii) Create a CCR tourism tax which is then provided to communities for purposes they define. A variation on this theme is Tarahumaras charging all agencies and hotels a fee per group of tourists that come to their communities.

iv) Create a regional land-use tax (not only for touristic, but also resource extraction) for regional municipal use.

b. Sectors can exchange information and services. Small mining companies expressed that they would like to comply with environmental regulations but it is too costly for them to prepare the Environmental Impact Assessments (EIA's) --due to the high cost of specialized information or professionals needed to prepare these. They say only large companies can afford EIA preparation. SEMARNAP could provide the basic biological and mitigation information for mining EIA's in the region to all small mining companies in exchange for their commitment to self-regulate, comply and/or help fund local conservation or restoration efforts. Interviewees from the mining sector commented that this might be attractive to them. Other ways of facilitating small mining companies' environmental compliance is for large mining companies to share their EIA baseline data; or for the small miner's association to hire an environmental consultant for all members.

These examples show how collaboration can be localized (community by community) and issue-specific (SEMARNAP and mining could decide to collaborate only on the issue of EIA). They show that SHG's can make alliances with some SHG's in another sector and do not necessarily have to be able to collaborate with the whole sector (e.g. small miners with SEMARNAP, not all miners with the entire conservation sector). This is part of the flexibility in collaboration: issue by issue, SHG by SHG.

3. Using and working with the variable 'time'. Many conflicts arise because of timing considerations or can be solved through timing arrangements.

a) Natural resources in the CCR could be utilized during different periods by different SHG's. Periodical access to resources could be seasonal, yearly or in several year periods. For example, tourism interests could have access to certain forested areas in seasons that did not conflict with ecological, indigenous or timber interests. Periodically changing access to resources can be a delicate issue, since there must be incentives for users to maintain the resource quality through the end of the use period. Some possibilities to ensure quality maintenance could be to exchange 'periods' among few groups (to keep responsibilities clear); make the periodic access cyclical (the resource comes back to the same users every x number of periods); and develop regulation mechanisms (such as monitoring by alternate groups).

b) During one stage of policy design, a conflict developed between the State Government tourism agency and the Chihuahua delegation of the Federal environmental protection agency (SEMARNAP) about the decree for a Protected Area (PA). This conflict was not over the necessity of some protected area status in certain areas of the CCR --on which both parties agreed-- but mostly

over the timing. The tourism agency wanted the decree to be published later rather than earlier. Their argument was that in order to avoid a 'paper park' there needed to be a management plan before the decree. They also wanted to define their own Tourism Development Master Plan (TDMP) before a PA decree, to avoid being overly restricted in their own planning. Chihuahua SEMARNAP, on the other hand, wanted the decree to be published earlier rather than later. First, they felt that a TDMP should be designed (or zoned) only after --or at least at the same time-- a PA plan had defined which areas were of ecological priority. But perhaps more importantly, Chihuahua SEMARNAP had no budget for activities related to planning a PA or its management plan until there was a decree, and through the decree the budgeting of administrative resources for that purpose. Thus, ecological zoning could not occur until SEMARNAP had the resources to organize ecological survey studies.

Since beginning investment in a final design of one plan when the other is not yet complete (and, thus may pose important restrictions) is risky and costly, both plans should work in a parallel and coordinated fashion.

An alternative to a PA decree would be to generate a budget line for a PA definition study before a decree is published. This budget line could have been negotiated between SEMARNAP and the Tourism agency. If that were not possible, SEMARNAP might decree a PA, which in its definition stated that its design and management were to be defined in conjunction with other sectors and local population. In other words, the decree would establish that the operation of the PA was contingent on the acceptance of the plan by other specified sectors.

These examples show that timing is one more variable that can complicate or be used to provide flexibility to negotiations. Contingent agreements are one way of creatively working around timing constraints.

4. State-wide perspective for local negotiation: capitalizing on multiple relations.
a) The TDMP initiative had been active in coordinating various government agency investments to provide services and infrastructure for the CCR. This broadened dimension of relationships augments the ways in which exchangeable interests can be expanded. For example, if a small mining enterprise was creating a water quality conflict near a touristic site, the tourism agencies might be able to provide the company with contacts or access to services that might save the latter money and thus allow it to address the water quality issue. Since the tourism agencies already had these contacts with service providers, helping the mining company would imply little interaction cost for themselves and it would help satisfy their own touristic interests.

b) The Northwest area of the CCR (the municipalities of Uruachi, Basaseachi, Ocampo, Maguarichi, Chinipas y Guazapares) is the 'scenic' area of the TDMP.

But that area has important high-volume mining interests, which greatly alter landscapes. As has been mentioned before, all major activities would benefit from zoning their areas of interest before large investments have been made and they threaten one another. Both tourism and mining sectors have a responsibility with SEMARNAP (and Tourism has an interest) to preserve environmental quality conditions. By joining efforts to analyze the environmental impact, all three sectors might benefit: mining receives assistance in its EIA baseline data collection and finds out before hand where it should not explore; tourism ensures the landscape protection it requires is achieved, by helping SEMARNAP have the information and capacity to enforce such protection.

These examples show that multiple relations of SHG's can provide additional dimensions from which to generate options for multiple gains.

5. Political gains: marketing participatory democracy

Governmental administrations find themselves under the pressure of demonstrating successes in 3 to 6 year periods, and this is often felt to be conflicting with the needs of participatory or collaborative planning processes, which may take longer than political administration terms. As the political party currently in charge of the State Government, the Partido Acción Nacional (PAN) has a very strong interest in finishing its State Government administration, in 1998, with spectacular results. Economic development in general, and the TDMP as one of its components, has been a key element of this administration's strategy to make a difference in the state of Chihuahua. Having to postpone the inauguration of the TDMP can affect the State Governor's political gains. In this regard, then, a collaborative planning process would not be desirable. However, one of the political banners the PAN has always advocated for is the democratization of Mexico's politics. The PAN State Government could promote a collaborative planning process in the CCR as one of Mexico's first large scale experiments in participatory democracy, thus addressing the interests of all SHG's while simultaneously ensuring political gain for itself. Another expression this exchange of interest could take is the inauguration of the TDMP with a simultaneous commitment to continue the development of the initiative through a collaborative process.

With this example we see that even political gains for government administrations can be achieved through promoting a collaborative process.

Discussion: The Reasoning behind Exchangeable Interests

Exchanging interests to achieve multiple gains is also referred to as integrative bargaining. Integrative bargaining works when the parties can find enough items they value differently and are willing to trade. By trading items they value differently, parties achieve actual benefits, and are not simply forced to

make concessions. In order to identify interests of different value which can be exchanged, one of two conditions is necessary: a) either a cooperative atmosphere is created, where parties feel confident to present their true range of interests and values to each other, or b) a mediator trusted by the parties is entrusted with this information and then develops proposals the parties might find acceptable. In this thesis, I did an approximation of the latter: through a stakeholder interest analysis based on interviews, observations and document analysis, I developed some ideas for exchangeable interests who will then be presented to the parties (in a final report to the CCR SHG's). In this case, these ideas intended only to stimulate the CCR parties' thinking in the direction of integrative bargaining, and would need to be improved upon by actual CCR SHG's, and set within a collaborative process.

Some of the tools used to exchange interests in this chapter were:

a) Zoning, or negotiating around space;

b) Offering resources or assurances in one area in exchange for concessions in another;

c) Exchanging goods or services for certain benefits;

d) Realizing that exchanges can be issue-specific and SHG-specific, i.e. exchanging on one issue or with one group does not imply exchanging on a whole set of issues or collaborating with a whole sector;

e) Recognizing timing as a complicating factor;

f) Using time as an exchange variable;

g) Developing conditioned or contingent agreements, to solve conflicts arising through timing;

h) Capitalizing on multiple relations of the parties; and

i) Capitalizing on broad range of action of parties, e.g. making use of a state-wide perspective to negotiate at a local level.

CHAPTER FIVE

ADDRESSING CHALLENGES FOR COLLABORATIVE LAND-USE PLANNING: ILLUSTRATIONS FROM THE COPPER CANYON REGION, MEXICO.

Introduction

The analysis of the presence of prerequisites for collaborative natural resource and land-use planning in the CCR (Chapter Three) and the development of options for joint gains for SHG in the region (Chapter Four), makes evident that the prospect of collaboration in the CCR raises many issues that are similar to protected area, territorial ordering, and land-use planning efforts elsewhere, both in Mexico and throughout the world. Features of the CCR situation which are common to other land-use planning efforts include: local population abandonment, stratification and diversity of requirements; differences in worldviews among SHG's; needs for awareness raising, training and education; difficulties in decentralizing government functions and coordinating the assignment of responsibilities and rights; and the need to focus on 'process' and 'partnership' as a new form of management.

This chapter presents reflections on the challenges that collaboration poses in the CCR and recommendations on how to address them. This chapter also links the results of my research with the broader discussions occurring in the fields of Collaboration and Partnerships, Land-Use Planning, and Natural Resource and Protected Area Management.

Reflections and Recommendations

1. A new role is needed for local involvement: a) in decision making, b) in generating knowledge and c) in advancing and developing local interests.

The attempts to improve natural resource and land-use planning efforts and to achieve environmental and political sustainability of policy initiatives have spurred a trend to increase local involvement in all levels of planning and management. Three areas in which local involvement can play a key role are developed below.

a) Capacity building for collaboration and decision-making: addressing local population's abandonment, stratification and diversity of requirements.

The groups with a stake in the land-use planning efforts in the CCR (as well as those of other similar situations world-wide) include government agencies, industry clusters, NGO networks, commercial and touristic sectors and local communities. Of all these, those at the greatest disadvantage at the onset of a collaborative process are the latter. Although each SHG is a dimension of its own, with its own strengths and weaknesses, decision-making mechanisms and

action capabilities, local communities are qualitatively and significantly different from the rest.

Heterogeneity is found in all SHG's, but local populations tend to be the most heterogeneous. This is not surprising, since they are a group of people associated with one another by geography, sometimes perhaps by a common economic sphere of activity, but not united by a concrete sense of mission (as an agency or organization), or as clear a common interest as a commercial or trade association. Communities have an inner stratification or differentiation based on class, gender, occupation, religious and even ethnic differences. This stratification must be recognized and addressed in collaborative processes.

Furthermore, communities with a direct stake in natural resource planning efforts tend to be rural (though urban populations can also be affected), with the consequent lower access to education, sources of information, markets, and other enabling elements. In addition, communities tend to have a weak organizational structure, and in many cases social capital has been eroded. Communities in the CCR have little experience in making decisions in a constructive and enabling way. Historically, they have not been given the role to participate in the design of policies relating to their livelihoods. Some of the few involvement opportunities they have had in this domain have been utilized for the promotion of external political agendas (CCR interviewee, pers. comm., 1996). Because of lack of access to information, education, markets, and decision-making opportunities about their livelihoods, their creativity and sense of initiative and of agency may have been undermined.

Considering these differences, it is not surprising that local communities have very different preparatory requirements for collaboration than do most other SHG's. They need more time to develop consensus on opinions and plans of action; they need training for negotiation; they need familiarization with planning information and processes for building their self-confidence in decision making in collaboration with more 'sophisticated' parties. Due to stratification and the resulting diversity of interests, different sectors of the community may require different incentives and participation methods. Different levels of participation may appropriate for each sectors. Communities need to begin to learn a process of analyzing, communicating, and making decisions, with which agency officials and NGO's have always worked , and that commercial, industrial and trade associations are quick to pick up, or are already very experienced with.

b) Local involvement in generation of knowledge: incorporating local knowledge systems into management plans and policy.

Practitioners and policy makers now recognize that professionals and local communities have complementary knowledge levels as well as complementary functions in natural resource stewardship. Locals have important meso-level

knowledge of resources, while externals have micro and macro-level knowledge not generally accessible to locals. Local resource is supported and bound by national and international policies and the reality and success of these polices depend on actual use occurring at the local level. Both sets of knowledge systems and functions need to be incorporated if effective management is to occur. One implication is that both spheres of knowledge and action need to learn about each other. Locals need to learn about regional level thinking (CCR NGO Interviewee, pers. comm., 1996 and become familiar with scientific and technical methods and criteria; while external actors need to learn about local perspectives and practices (CCR NGO Interviewee, pers. comm, 1996). For external professionals, this means a change in behavior and attitudes in the direction of learning and listening in contrast to lecturing and teaching.

In summary, local communities function in different decision-making and time spheres than most other SHG's. The process of combining the local and external forms of deliberation and interaction, functions and knowledge systems for effective collaboration and partnership requires certain actions. On the local community side, capacity building can aid in redressing the balance and improve chances for effective collaboration. From the external agent side, a new professionalism is proposed, and a new policy context as well as new funding mechanisms is identified as necessary. Several promising examples of this type of participatory efforts have been documented.

c) Ensuring local interests are addressed and locals receive development benefits.

Besides improving the prospects of collaboration and reliable policy implementation, local involvement is important to advance local interests and ensure that development benefits are capitalized locally. Profits generated by tourism do not automatically trickle down to local communities. If no concrete efforts are made in the direction of ensuring a distribution of the profits, there is no reason to expect the situation in the CCR to be different. In Canada's Northwest Territories a recommended precondition to establishing a natural park with touristic activities was to negotiate special impact and benefit agreements with native communities. A determined and directed effort is required for communities to become substantially involved in tourism.

Furthermore, several CCR SHG's --including tourism government agency officials-- were concerned that the touristic development in the CCR was not necessarily benefiting locals or even Chihuahua state investors. "The hotels in Chihuahua don't even belong to Chihuahuans." "The owner of xx hotels is from another state, and only hires people from that state".

If any policy initiative is to term itself "regional" and "integral" development plan", as the Copper Canyon Tourism Development Master Plan (TDMP) does,

that plan should strengthen the regional economy and an important portion of the investment should be capitalized locally.

2. Planners and planning processes need to be responsive to differences in culture and worldview.
Besides differences in spheres of action, ways of participation, and participation capacities, an important difference frequently present in many collaborative processes is that of worldview differences due to ethnicity. Generally worldview differences exist between SHG's (and sometimes even within them). A specific difference, and usually the greatest gap in worldview particularly in rural land-use planning, is between the "western", market-oriented, scientific perspective and the autochthonous, 'indigenous' perspective. The former is described as scientific-utilitarian, ideologically separating nature and culture ; views land as a commodity and the elements of ecosystems as resources to be bought and sold in impersonal markets ; and remotely directed, implying transplanted methodologies and reflecting metropolitan interests and perceptions of nature . In the latter, in contrast, nature and culture are not seen as binary; and land is endowed with sacred meanings, embedded in social relations and fundamental to the definition of a people's existence and identity.

Not surprisingly, an inherent tension exists between the natural resource use approaches deriving from both types of worldviews. This tension tends to be further complicated with historical relationships of exploitation, indoctrination, repression and even destruction of indigenous cultures in the name of national unity, economic progress, or other espoused ideals (CCR Interviewees, pers. comm., 1996;.

As with any feature of social groups, clear-cut distinctions and generalizations cannot be made between the two worldview groups. The CCR context includes forest industrials and professionals with a sense of sustainability for forest and natural ecosystems as well as indigenous communities who do not have the magical and romantic relationship to nature attributed to "indigenous peoples". Furthermore, several interviewees pointed out that the mestizo-Tarahumara distinction is not so much an issue of ethnicity, but rather of behavior, attitudes and culture.

Natural Resource Management Implications

In recent decades a shift in the science and practice of natural resource management has needed to take place for improved conservation. Much can be gained from recognizing the importance of indigenous forms of relating to natural resources and integrating indigenous practices with 'scientific' natural resource management . Pimbert and Pretty (1995) cited various studies reporting that the presence of human beings and indigenous management can be very beneficial to the maintenance of biodiversity.

However, identifying and incorporating indigenous ecosystem knowledge into current natural resource management is not so simple. First, the world-views surrounding and sustaining both knowledge systems may be incompatible, as may the management goals.

Second, indigenous cultures are not static, and indigenous communities are not monolithic. In the CCR case, the Tarahumara People have varying degrees of "mestization" in different communities. As any other culture, indigenous cultures evolve naturally through time; they also change as they are brought in contact with other cultures. According to CCR Indigenist Specialist interviewees, the Tarahumara culture has been eroded in many instances.

Third, in many cases, more than two different ethnicities co-exist in a region, with their entailing differences in worldview, as well as decision-making and participation mechanisms. The CCR research of this thesis focused on the Tarahumara, being the largest non-mestizo population in the region, but Pimas, Tepehuanes and Guarojíos also live there. These other groups may have different worldviews and approaches to nature, complicating --or enriching-- natural resource management.

Fourth, indigenous peoples may have no traditional relationship with certain natural resource aspects or resources themselves, and thus any associated myths, taboos, and management practices that might ensure the resource's conservation. A case in point are the Tarahumara, who have no "traditional" experience and consequent cosmogony around timber production, whereas very sophisticated ones exist around maize --product of agriculture-- and water --a natural resource--, for example. According to Indigenist Specialist interviewees, the Tarahumara do not, traditionally, consider themselves the owners of the forest or the trees; since they did not plant those trees, those trees belong to God. If the 'chabochis' (their pejorative term for whites/mestizos) want to take the trees then they can do so, and they really do not have to pay the Tarahumara anything, because those trees do not really belong to the Tarahumara. How would this philosophy translate into action relative to forest management? How would it be justified that if mestizos manage a forest for timber production, Tarahumara are no longer allowed domestic use of the resource on their land because it 'conflicts' with management plans?

The broad implication of this general point is that, although indigenous peoples have traditional knowledge, they, as much as mestizos, can still greatly benefit from training in the use and sustainable management of certain resources. The combination of technical-scientific and indigenous knowledge systems may be useful and to the advantage of people and nature Social Implications Because collaboration is a social process, the social background of different worldview relations must be considered if we are suggesting partnerships for land-use planning. Domination, extermination, repression, human rights abuses

and property abuses in varying degrees have scarred indigenous-non-indigenous relations historically. The movement for the restitution of indigenous peoples' rights has reached important levels internationally (e.g. UN Year of Indigenous Peoples; Nobel Peace Prize awarded to Rigoberta Menchu; international funding institutions' interest in indigenous views and biodiversity conservation; 1989 International Labor Organization Convention No. 169 on Indigenous and Tribal Peoples; etc.) and has had violent expressions at local levels (e.g. Zapatista rebellion in Chiapas, Mexico). The topic is sensitive and politicized, as even SHG's in CCR point out. This is both a fear for collaboration and a motivation to strive for it.

In the CCR, stereotypes about one another and lack of knowledge about each other affect inter-ethnic relations. Consider the following examples:

a) 'Tesgüinadas' --the sharing of alcoholic maize beverage after collective work between several families or in ritualistic thanksgiving-- is not generally understood by mestizos as an activity fostering community solidarity and agency. Rather, they perceive it as a non-purposeful habit of periodically getting   intoxicated.
b) Tarahumara value their self-sufficiency highly and only seek paid employment in critical situations in which their crops cannot provide their food and the sufficient resources to buy clothing and other indispensable goods they do not produce. When they are employed they will only work until they receive the necessary money to cover immediate needs. They do not conceive working for a wage as a way of life but as a complement. Mestizos interpret this behavior to mean the Tarahumara are lazy, unreliable people.
c) Tarahumara, on the other hand, see themselves as acting accordingly to Divine Will, being self-sufficient, sharing, thanking God through dancing and drinking Tesgüino, and trusting divine Providence to attend to their needs year after year. They do not understand or share mestizo conceptions of accumulation and saving for the present or for the future;. In their view, this conduct is associated with greediness, low sense of community solidarity, and generating   behaviors   abusive   to   nature.
d) In terms of development projects brought to their communities, the Tarahumaras' non-confrontational attitude is manifest in their acceptance of anything outsiders suggest, independently of whether they will actually use it or not. A close collaborator to the Tarahumaras expresses it: "they treat you the way you want to be treated".

These differences result in conflict at the community level, sector level and in general in many interactions between Tarahumaras and mestizos. The different conceptions of 'progress', the contrasting motivations for actions, and the mutual warped perceptions between Tarahumaras and mestizos (and mestizos here includes locals, industrials, government agents, etc.) can be very exasperating to both groups and have a negative effect on their relations.

Clearly, for collaboration to be successful, more knowledge and understanding must be fostered between the different worldviews involved. The TDMP documents recognized this and proposed strengthening indigenous culture by making it widely understood by both mestizos and Tarahumaras themselves through workshops, courses, cultural events, exhibits and pamphlets. However, effectively integrating scientific and indigenous knowledge for resource management may require more than dissemination of cultural information, self-determination of indigenous peoples is linked to fruitful cultural exchange. Agrawal pointed out that indigenous knowledge must be preserved in situ, within the natural and cultural environments within which it is generated, and he argued that can only take place when indigenous people gain "control over the lands in which they dwell and the resources on which they rely."

3. Awareness raising; training in environmental, social, cultural and process skills; and development of civic consciousness are necessary. Awareness can be understood in many forms. Understanding the other parties' perspectives is one form of awareness, referred to in the negotiation and consensus-building literature. Another form of awareness is realizing the multidimensionality of land-use planning issues (e.g. becoming aware of complex ecological connections, aware of environmental, social, cultural, economic impacts of human activities, etc.). A third form of awareness, mentioned several times during the CCR research, is civic consciousness. Awareness raising in all these areas was found necessary in the CCR.

First, parties in general had very partial understandings of each others' perspectives on almost all issues --culture, needs, interests, natural resource goals, etc. Second, most SHG's mentioned that other groups --occasionally their own group was included-- lacked environmental or civic awareness. Tarahumaras and local mestizos charged each other with a lack of environmental awareness. Tarahumaras perceived mestizos as having low social solidarity (one form of civic consciousness). Forestry sector SHG's mentioned local 'ejidatarios' lacked environmental awareness, while tourism sector interviewees mentioned that ejidatarios lacked civic consciousness. Several interviewees, including members of these industries, commented that forest and mining industries lacked environmental and social awareness. From an outsider's perspective, besides government agencies and NGO's directly related to conservation issues, all SHG's had significant gaps in environmental awareness (either in practice or both in rhetoric and practice), and civic consciousness was an elusive quality which appeared to need developing across groups.

Exposure, communication, joint problem-solving and training or educations are some mechanisms by which lack of awareness can be addressed. In interviews, most SHG's expressed the need for various types of training, some related to awareness raising, some to other needs.

a) Training in negotiation and collaborative decision-making. In many conflict resolution cases training in negotiation techniques has been recommended. Training in negotiation may concern consensus-building techniques, but can also include training in information gathering and analysis. This type of training is important for all groups, but particularly for those with less experience and formal education. Several CCR interviewees highlighted the need for training in facilitation and consensus-building.

Learning about one other so as to understand each other is indispensable for effective collaboration. This learning can include exposure to different worldviews, different perspectives and simply overcoming stereotypes. Much of it can occur through the collaboration process itself. However, expanding this 'education' beyond the negotiating team to the broader constituencies of each SHG before, during and after the process, is essential in making agreements stable.

Besides training in negotiation, training in different decision-making forms is also important (e.g. external professionals in community participatory processes; local populations in technical analyses and regional and macro perspectives).

b) Training in specific areas of expertise.

If the topics of collaboration are around land-use and natural resource use, then training and awareness-raising on basic ecological principles and connections as well as specific resource management issues is also recommended . Wemmer et al. (1993) state that education (for public awareness and trained personnel) is the most cost-effective and immediate means of promoting biodiversity conservation.

In the CCR, training needs also related to developing skills necessary in traditional and new economic activities. Training in these areas would enable locals to participate more meaningfully in them. Some of the specific training needs in the CCR were for: forest surveillance; forest management; general administrative skills; tourism operations; biological surveys/inventories generation; mapping, positioning, and GIS skills; etc.

In the CCR context, skills training could provide, among others, the following benefits generation of qualified labor for new jobs; less immigration to the area would be necessary to take up specialized positions if locals were hired, avoiding problems of overpopulation and relocation costs of potential immigrants; activation of the local economy by creating yet a new set of jobs: trainers; eliciting and enhancing local participation and interest (which would increase civic consciousness, environmental awareness, and set the basis for

participatory forest surveillance --a specific activity many SHG's mentioned was necessary; and aid in the fostering of social harmony.

c) Education beyond skills training.

Finally, some interviewees commented on the need for improved basic education (beyond skills training) which they believed would enhance civic consciousness, which in turn would improve SHG relations and natural resource stewardship. In effect, social capital and civic consciousness can be enhanced with good basic education and meaningful opportunities for community members to participate in making decisions about their own lives.

To address needs in the region adequately, training --or any other development initiative-- must be planned with local input, since investment in training for activities and skills which people will never employ would be inefficient.

Because information is a source of power, education and training can be empowering

Any attempt to train and educate marginalized sectors of society has the potential of threatening those who currently have power to control activities. In the CCR, forestry professionals, 'caciques', illegal land- holders and government agencies are some groups that may be threatened in their livelihoods or activities if communities are empowered through training and decision-making capabilities. Alternatively, training can also help spread across several SHG's the burden of management and maintenance responsibility, including environmental and natural resource conservation, control of illegal activities and violence, etc. This was mentioned by CCR interviewees.

4. Rights, responsibilities and resources must be linked

The issue of responsibilities is manifold. For effective implementation of policies, responsibilities should be accompanied by resources, rights and/or power. Conversely, power or rights should not be devolved or granted --to agencies or local elites-- without accountability to the constituencies they 'represent'. Certain type of responsibilities --such as ensuring 'sustainable development' or 'social harmony', or simply establishing a PA with SHG input-- are, by their nature, very broad, cross sectoral boundaries, and thus, are difficult to take up by individual SHG's. The human and economic resources, and the time required to attend to this type of responsibility are beyond those of any one body. Following are some illustrations from the CCR on the challenges presented by linking resources to responsibilities.

a) Responsibilities and accompanying resources and rights.

In several countries a trend exists toward decentralization and devolution of authority and responsibility for natural resource management to more local units of governance, including state and local governments, communities, citizen groups, and other entities. Mexico is not the exception. In many areas, but particularly natural resource management, the federal government is transferring some of its functions to local and regional entities (e.g. aspects of forestry management to the regional forestry councils; many environmental functions, including some protected area management to state governments. In contrast with other countries, in Mexico, appropriate legislation has generally followed this transfer of responsibilities closely, but unfortunately the funds, trained personnel and experience is not being transferred at the same rate, or even at all. For responsibilities to be taken up effectively, economic resources and technical know-how must also be transferred to the new entities.

b) Power and accountability (rights and accompanying responsibilities). In the CCR, as in other regions of the world, local elites are not always accountable to their communities. In the CCR this takes expression within mestizo communities, but also frequently between mestizo ejido authorities and Tarahumara ejidatarios. Caution should be exercised in identifying representatives who are effectively accountable for a collaborative process. Unaccountability may also occur at other levels. How accountable would current government officials be for the environmental and social impacts of a touristic development plan that did not generate the expected employment or that deteriorated certain habitats 10 years from now? How accountable would the forestry sector be for deforestation in the CCR? Which groups within that sector? Accountable to whom?

c) Broad and complex responsibilities.

Sectoral responsibilities --those specific to tourism, forestry, mining or protected areas-- are, in general, readily assumed by the appropriate government agencies and related SHG's, but the complex task and responsibility of integrating economic, social and environmental interests to achieve "sustainable development" is not so easily taken up. In the CCR, responsibility for "sustainable development"; responsibility for the cost of environmental protection and biological conservation; the costs and responsibilities associated with integral community development; or even the responsibility to control the complex issue of illegal timber harvesting were not readily taken up by government agencies or any other single SHG.

All CCR policy initiatives analyzed in this thesis mention that community development needed to be addressed in parallel with the initiative --be it a touristic development, a protected area, or a forestry management plan-- however in none of these initiatives was it clarified who would take that responsibility. Who will involve communities in decision-making? Who will train them for participation? Who will pay for the lengthy process of capacity

building? Who will provide the funds to address the issues that are of concern to communities, even if they are not directly associated with the policy initiatives of interest? None of the initiatives seemed to be willing to make those investments.

Similarly, much was written in policy documents about the need for preservation of landscapes, watersheds, habitats, etc. Among the environment-related responsibilities in the CCR, one may distinguish between 1. Biological baseline data inventorying; 2. The responsibilities associated with an Environmental Impact Assessment (EIA), which include evaluating the impact a project will have and assuming the responsibility for necessary mitigation; and 3. The responsibility current and future resource users (hotels, visitors, extractive industries, etc.) have to maintain the area in a certain condition. Many CCR SHG's appeared to group all these responsibilities into a single "environmental" category and assumed that they all belonged to the government agencies in charge of environmental protection (SEMARNAP and the State Department of Ecology). The latter two are responsibilities of the users, but can only be enforced if the environmental agencies have the funds to ensure such enforcement. Currently these agencies are understaffed and under-budgeted. These agencies should clarify the distinctions between types of environmental responsibility before initiatives are too advanced and they are unable to comply due to lack of budget.

The non-assumption of broader community development and environmental responsibilities by specific SHG's in the CCR might be partially explained by misconceptions and lack of communication. Many initiative proponents felt that other initiatives or other SHG's had more resources and therefore should assume the costs of the broader responsibilities. For example, tourism government officials thought the natural resources agency would receive Global Environmental Facility (GEF) funds for the establishment of a protected area and that the forestry sector generated so much more income than tourism that those sectors should pay for environmentally-related studies and monitoring. Non-tourism initiatives felt that the tourism development project had such strong governmental support and access to great quantities of international funds that they should do the social and environmental impacts studies that were required. In fact, many groups had misconceptions (frequently an overestimation) of the funds that other initiatives had, as well as a weak legal obligation to address certain responsibilities (particularly social ones) and poor enforcement of those (environmental) responsibilities that were legally defined.

Another CCR example of a complex, broad responsibility where different SHG's see others as responsible was illegal timber harvesting control. Government and NGO's believed industry had the responsibility to not cut or buy illegal timber. Forest industrials pointed out that is were the Government's and ejidos'

responsibility to provide surveillance and not to cut illegally. Ejido and Tourism sector interviewees felt the Government should control illegal harvesting.

Illegal harvesting control, community development, and environmental protection, are all issues that involve a cost not currently associated with a direct benefit for the entity that incurs the cost. Their complex, multidimensional nature also makes it difficult for one party to take complete responsibility for addressing them, even if they wanted to. In this sense they become broad and complex responsibilities that individual parties de not assume as theirs. Different instruments may be used to drive parties to assume their part of these responsibilities: internalizing these costs into the price system; establishing taxes or fees; passing appropriate legislation; clarifying land-tenureship; and collaborative planning and partnerships, among others.

5. A decision-making and management paradigm that adapts to 'change', envisions 'processes' and forms 'partnerships' may be most appropriate. A new paradigm in land-use planning and natural resource management is emerging. In the CCR, as occurs in other land-use planning sites, the ideas of 'process' and 'partnership' come forth frequently. Collaborative planning is a decision-making process, one of the purposes of which is to generate a partnership that can manage and resolve continually emerging conflicts between SHG's and adapt management plans to evolving circumstances. Behind the ideas of 'process', 'adaptive management', and 'partnership' is the recognition of constant change and fluidity in conditions, which is argued must be incorporated into policy and plans for these to be effective. This new paradigm differs from previous forms of planning and policy making in natural resources, where the 'experts' (usually agency personnel) would study conditions (usually biophysical) of a region and develop a 'Management Plan' -- a one-time, final document, meant to be applied as it was 'forever'. In some situations, the lack of government resources for direct implementation and enforcement of the plans reduced them to binders on office shelves; in other cases where implementation did take place, inconsistencies with local realities or conflicts made the plans ineffective anyway.

In the CCR, some SHG's commented on other aspects of 'process' not related to decision making. An NGO official mentioned that the forest industry should become more involved in the 'process' of forest ecology research and forest preservation, so that their patterns of extraction become modulated by a new awareness of the costs of maintaining forest health. An avant-garde Forest Industrial recommended that forest industrials become more aware of the economic costs and benefits occurring at each stage of the timber extraction process, and that they strive for a more equitable distribution, if they want local 'ejidatarios' to be satisfied and motivated to preserve the resource.

Thus, land-users and managers appear to be developing a new awareness that issues (timber extraction, forest preservation, management plans in general,

citizen involvement in general, etc.) and decisions about them are processes, not one-pointed occurrences. With the recognition of continuous change, and this new approach, comes an awareness of timing: land-use issues are not resolved in one-time events; they take months and even years. The assurance is that throughout this time there is continuity in the 'process'.

Pimbert and Pretty (1995) summarized the characteristics of "process-oriented flexible projects" and described the elements of this new paradigm. Although their focus was on community involvement in protected area management, the description is relevant to SHG involvement in a broader range of land-use planning efforts. They described these projects (p.35) as:

"[having an] initial focus…on what people articulate as most important to them. This may mean embarking on tasks not central to the project's remit. After beginning, community-based conservation projects may remain small, or be combined into protected area programmes once the participatory procedures and processes have been fully worked out. Error is treated as a source of information and flexibility permits continuous adaptation procedures. Local people are encouraged to develop a stake in the project goals and outcome. Indicators are … milestones, rather than absolute, eternally fixed and illusory targets. Innovative extension mechanisms … achieve effective multiplication of … technologies."

The authors noted that projects less than 5 to 10 years long are more susceptible to failure, and recommended that funding organizations be prepared for low levels of initial disbursement and for changes in priorities.

Conclusions

The complexities and difficulties involved in creating an effective collaborative land-use planning process in the CCR are encountered in other regions of the world. Some possible ways to approach these challenges were suggested in this chapter: a) provide a new role for local involvement, create a space for new forms of interacting, decision-making, and generating knowledge; b) be responsive to differences in culture and worldview; c) raise awareness and educate, both in general and on specific topics; d) ensure correspondence between rights and responsibilities; and e) adopt a process-oriented paradigm based on adaptation to change, the development of partnerships and the vision of longer time-frames.

The implementation of these suggestions will require changes in our current forms of operating and interacting with each other. They will imply significant effort, political commitment and investment of resources. "[W]hile there are still no tested formulas for successful community participation and mobilization [read collaborative planning] …, there is a social learning process taking place …" This learning may be our best investment to achieve equity in our societies

and approach those elusive concepts of environmental and political sustainability of natural resource management.

This thesis has demonstrated that conditions conducive to collaborative planning exist, at least in part, in the CCR. Potential stakeholders are many and diverse, but a variety of incentives may help stimulate collaborative planning and management efforts. The process of developing this thesis has spawned an explicit assessment of mutual or exchangeable interests among stakeholders. The next chapter in land-use and natural resource planning efforts in the CCR is yet to be written. It is my hope that this thesis will stimulate fruitful discussion about the merits of collaboration in such planning efforts.

APPENDIX I.
ABBREVIATIONS USED

CCR: Copper Canyon Region

CET: Coordinación Estatal de la Tarahumara (State Government Agency for Indigenous Affairs

CIEE: Centro de Información y Estudios Estratégicos (State Government Information and Strategic Studies Center)

DGDR: Dirección General de Desarrollo Rural (State Government Directorate for Rural Development)

DUEV: Dirección General de Desarrollo Urbano, Ecología y Vivienda (State Directorate for Urban Development, Ecology and Housing)

FONATUR: Fondo Nacional para el Fomento del Turismo (National Fund for Tourism Promotion)

PA: Protected Area

RUDETO: Regional Urban Development and Ecological Ordering Plan

SECTUR: Secretaría de Turismo (Federal Tourism Agency)

SEMARNAP: Secretaría de Medio Ambiente, Recursos Naturales y Pesca (Federal Agency for Environment, Natural Resources and Fisheries

SHG: Stakeholder Group

SPSFD: State Program for Sustainable Forestry Development

TDMP: Tourism Development Master Plan

APPENDIX II

GLOSSARY

Cacique: despotic economic and political community 'boss'.

Chabochi: term used by Tarahumaras to refer to white and mestizo people in a pejorative way.

Ejido: Ejido is a form of communal land-tenureship in Mexico. It is the land tenure form with highest area (approx. 80%) in the CCR (Consejo Técnico Consultivo Regional Forestal 1996).

Ejidatario: A communal land-owner who is entitled with ejido rights.

Mestizo: the ethnic majority in Mexico --a mix of Spanish and Indigenous races.

Mestization: the adoption of 'mestizo' culture.

Nahuésari: Periodic Tarahumara meetings, led by the community 'governor', in which all community matters are discussed.

Tarahumara: Indigenous people living in the CCR, Chihuahua, Mexico.

Tesgüinada: The sharing of alcoholic maize beverage after collective work between several families or in ritualistic thanksgiving. A Tarahumara tradition.

Tesgüino: Fermented maize beverage prepared traditionally by Tarahumaras.