Journal of Sustainable Forestry, 28:663–679, 2009

ISSN: 1054-9811 print/1540-756X online
DOI: 10.1080/10549810902936243

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A Problem-Oriented Overview of Management Policy for Podocarpus National Park, Ecuador

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There are many challenges in managing a national park in the common interest. In Podocarpus National Park (PNP), we identified three kinds of problems. First are problems about biophysical entities (e.g., trees, forests, wildlife, fire, water, and so on). Second are problems about how people interact with one another (e.g., social process—participants, perspectives, values). Third are problems about how people make decisions (e.g., the process of gathering information, debating it, deciding, implementing the decision, appraising accomplishments, and ending the process). We used "problem orientation" to understand and address these three classes of problems. Problem orientation is a form of rationality that helps people clarify their goals, identify what problems stand in their way, and what alternatives exist to achieve goals and solve problems. This strategy requires users to be clear about their goals, historical trends, explanations and conditions behind trends, future projections, problem definitions, and alternatives to solve identified problems. We explore three options for improved

The authors want to fully acknowledge the help of their Ecuadorian hosts and the many people who generously offered their time and knowledge. The authors spoke with and visited people in communities, cooperatives and associations, in government at several levels, at universities, and non-governmental environmental groups. These people are too numerous to mention them all by name. The authors extend a thank you to each and everyone.

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PNP management policy. First is the status quo option. Second is active use of problem orientation by leaders to more clearly understand challenges and identify management options. Third is to target key management decision-making processes and improve or upgrade them.

KEYWORDS problem orientation, management challenges or problems, social process, politics, decision making, prototyping, Podocarpus National Park, Ecuador

INTRODUCTION

The management of Podocarpus National Park (PNP) is a complex ongoing human process. By knowing the challenges officials and supporters of the park face, realistic options can be invented, selected, and implemented to solve or at least ameliorate problems. Published reports list many problems in and around PNP (e.g., Tello, Fiallo, & Naughton-Treves, 1998), including deforestation, land conversion by fire, poorly defined Park boundaries, political conflict, lack of government coordination, and inadequate enforcement. These problems can be examined using "problem orientation," a strategy for rational, contextual problem solving. It calls for people to clarify their goals, define problems, and invent, evaluate, and select alternatives or solutions in a realistic, systematic, and grounded way. More specifically, this approach requires that users systematically consider the goals of management, historical trends, explanation or conditions behind the history, likely future developments, any difference between goals and actual events (i.e., problem definitions), and ways or alternatives to address problems. This method suggests that problem solvers focus on content (e.g., water, soils, plants, animals) and procedural (e.g., people and decision process) dimensions of problems simultaneously. Too often, these two dimensions are reduced to overly simplified technical problems of engineering (Brunner, 2004). Human factors in natural resource management policy tend to be discounted and subordinated to technical considerations, often with disastrous consequences. We maintain that the best way to understand current management of Podocarpus National Park is by using a fully problem-oriented, contextual, and multi-method approach (Clark, 1992).

In this article, three aspects of PNP management policy are examined using problem orientation: we (a) survey and organize literature on PNP management problems, (b) introduce and describe the problem-oriented strategy that we use and apply it to the PNP situation relying heavily on information gathered during our field trip, and (c) make recommendations to improve problem solving and PNP management. Problem orientation, if used empirically and with skill, can aid conservation and development in the PNP region and elsewhere worldwide.

METHODS

We visited Podocarpus National Park, Ecuador, in March 10–19, 2005 and carried out a rapid appraisal (this volume). Our work was part of a field course at Yale University's School of Forestry and Environmental Studies. For our analysis, we followed the problem-oriented, contextual, and multimethod approach outlined by Clark, Willard, and Cromley (2000); and Clark and Ashton (2004). We focused on actual problems, describing and analyzing them and their contexts, and looked for how they might be solved or ameliorated. During 2 months of preparation, and on the field trip to PNP, we were introduced to many issues. Travels took us to Catamayo, Salado, near Jimura, Andaluza, Bosque de Hanne, Fundación Jocotoco, Tapichalaca Reserve, Cajanuma park station, herbarium at the Universidad Nacional de Loja, Universidad Tecnica Particular de Loja, Fundación ArcoIris, PNP, Nature & Culture International, Estacion Biologica San Francisco, the Ministry of Environment's office at Loja, and to various local communities. At these locations and organizations, we listened to numerous presentations and spoke with many people in formal and informal situations. We also went to Quito and spoke with The Nature Conservancy (TNC) and Conservation International (CI). To gather additional insights, we visited libraries, museums, and other repositories of information.

AN INITIAL LOOK AT MANAGEMENT PROBLEMS IN PODOCARPUS NATIONAL PARK

Several authors have written about problems in PNP management policy. Presently, attention in the PNP arena focuses on biodiversity, water, private lands, buffer zone, public land management, forests, soils, education, markets/businesses, agriculture, and other related issues. There are many aspects of management at play, including decentralization versus centralization, issues of participation (experts, officials, citizens, business, and others), and matters of governance and decision making. One of the most prominent descriptions of problems is Tello et al. (1998), which is an overview of PNP in the book *Parks in Peril: People, Politics, and Protected Areas*. We reviewed that chapter and classified problems into two types: content (or biophysical) problems and procedural (or human social process and decision process) problems. Tello et al. listed 10 content problems and 12 procedural problems. We subdivided the procedural problems into six human social process problems and six decision-making process problems (Table 1). This accounting shows a host of interrelated content (biophysical) and procedural (human) problems exist, making the situation truly a complex "problematic" arena. These problematic elements must be addressed somehow if conservation and development are to be put into sustainable action on the ground.

TABLE 1 Management Policy Problems for Podocarpus National Park (PNP), Ecuador, Identified by Tello et al. (1998; Page Numbers Follow each Problem Listed)

Biophysical problems (content problems)	Human social process (procedural problems)	Decision process (procedural problems)
Deforestation (293)	Local attitudes toward PNP (317)	Lack of government coordination (299, 314)
Land conversion by fire (296)	Political conflict between Loja and Zamora (314)	Lack of political power for PNP (305)
Cattle ranching (296)	Poorly defined park boundaries (290)	Ambiguous government policies (299)
Development of roads (298, 313)	Inadequate personal of PNP (288, 299, 305)	Managerial limitations of PNP (299, 305)
Hunting (298, 299)	Overlapping land tenure (291)	Lack of help from law enforcement (299)
Fishing (299)	Colonization (292)	Inadequate budget of PNP (288, 305)
Wildlife traffic (299)		
Timber extraction (299)		
Illegal orchid harvesting (300)		
Gold mining—by both small scale and commercial interests (288, 300, 311)		

THE PROBLEM ORIENTATION STRATEGY

Problem orientation requires more than a listing and description of what someone considers problematic as in Table 1. It requires employing the full strategy of problem solving in a systematic, data-grounded way. Problem orientation is a form of rationality designed to help people be clear about what they are seeking (goals), what stands in the way (problems), and what can be done about them (alternatives; Lasswell & McDougal, 1992). This section briefly introduces this strategy. It focuses on finding and addressing problems. Problems are discrepancies between goals and actual or anticipated states of affairs. It has been described most comprehensively by Lasswell and McDougal, and in Clark (2002). These authors list and describe the operations that people carry out in problem solving (see Wallace & Clark, 2002).

The problem-oriented strategy is the method that successful problem solvers most often use. Being fully problem oriented is a higher form of disciplined rationality than most people typically use in problem solving. It is not a method that was artificially constructed based on theory. It is grounded in what successful problem solvers actually do. It has been applied to many natural resource management cases worldwide. For example, Eves, Gordon, Stein, and Clark (2002) applied it in Africa; Fenimore and Cullen (2002) in Brazil; Newcomer (2002) in Costa Rica; and Reading, Clark, McCain, and Miller (2002) in the United States. Other applications are listed in Clark et al. (2000, 2001) from over 30 countries. The

TABLE 2 The Problem-Oriented Approach to Conservation and Development Problems. Repeat in an Interactive Way, as Necessary

Problem solving operations	Outcomes
1. Determine goals (What outcomes are wanted?)	Sustainability of Podocarpus National Park in ways that enjoy long lasting public support (a common interest outcome)
2. Identity problems (What are the problems with respect to this goal?)	Policy and management processes are problematic (inadequate policy process, insufficient attention to kinds of knowledge needed and quality of the process itself, and process is insufficiently consensual)
3. Determine alternatives (What alternatives are open to participants to solve problems?)	Science-based (e.g., more research) Practice-based (e.g., better programs) Learning (e.g., prototyping, appraising) Interdisciplinary (e.g., integration)
4. Evaluate alternatives (Would each alternative contribute to the solution of the problem?)	Trends Did the alternative work in the past in a similar situation?
	Conditions Why and under what conditions did the alternative work or did not work?
	Projections Alternative would or would not work under current conditions?
5. Select alternative	Selected alternative that will solve problems and meet goals. Appraise on ongoing basis and modify efforts as needed.

problem-oriented approach, as described in Table 2, comes from Lasswell (1971). It requires users to be clear about goals, historical trends, explanations and conditions, future projections, problem definitions, and options or alternatives to solve problems.

Goals are important to establish up front in problem solving activities. This is the most important tool in problem orientation. It gives direction to human thought and problem solving. It specifies the way we wish to progress as individuals and as communities. Without a clear goal statement we cannot determine where we are, which direction we are going, if problems exist, or determine what to do about them.

Indices of goals are needed in terms of content (biophysical features) and procedure (social and decision process) considerations. Indices refer to events that indicate the degree to which values are available and are distributed among people. Indices are essential tools to be used in the appraisal of present management practices by government and other parties and overall institutional behavior. Indices can be mapped and their history determined, explained, and projected into the future to see if a problem exists or is

developing. If problems are found to exist, given the goals, then alternatives must be invented to address problems.

Problem orientation focuses both on being substantially rational (i.e., getting the facts of the matter about the problem at hand) and on being procedurally rational (i.e., using the facts in a procedurally rational manner). Most problem solvers focus on being substantially rational and fail to be fully rational procedurally. The problem-oriented method, although more demanding than conventional problem solving, helps users makes better judgments.

APPLICATION TO PODOCARPUS NATIONAL PARK

This section looks at goals (and indices) of PNP management policy, organizes the problems that we learned about on our field trip, and examines solution strategies. It partially illustrates problem orientation.

Goals and Indices

Clarifying goals and setting indices of those goals is essential in problem solving. For this reasons, we first tried to determine what the official management policy goals are for PNP. We searched the literature, government documents, and asked our Ecuadorian colleagues for statements about goals. First, we found published management goals in Apollo (1984) to (a) preserve a pristine sample of montane and premontane ecosystems; (b) maintain Podocarpus forests in a natural state; (c) conserve geomorphic features, vegetation, and soil cover of the upper watershed of the rivers Jamboe, Sabanilla, Bomuscaro, Numbala, Loyola, Nagaritza, Quebrada de Campana, and Vilcabamba, among others; (d) conserve the scenic paramo (humid, tropical alpine grasslands) and lake sites for tourism visitation; (e) provide opportunities for open-air recreation and environmental education for the region's growing urban populations, particularly of Loja and Zamora; and (f) support an integrated land-system compatible within the region, providing opportunities for community development and the preservation and sustained, economical use of the area's resources.

Second, we found government goals listed in the PNP management plan (i.e., Ministerio del Ambiente Regional Loja-Zamora, 2004, see Table 13: Logical Frame of the "Plan Gerencial del PNP," p. 25). General goals were to (a) promote a shared action to secure the conservation of PNP's biodiversity; (b) promote the sustainable use of the natural resources that generate direct benefits to the communities and support local development; and (c) manage the protected area in an efficient way in order to follow its creation objectives such as: opportunities for the development of different activities, integrated development of the region, protection of hydrological

TABLE 3 Objectives and Programs in Podocarpus National Park, Ecuador (Ministerio del Ambiente Regional Loja-Zamora, 2004)

GENERAL OBJECTIVES:

- Promote a shared action to secure the conservation of PNP's biodiversity;
- Promote the sustainable use of the natural resources that generate direct benefits to the communities and support local development;
- Manage the protected area in an efficient way in order to follow its creation objectives such as: opportunities for the development of different activities, integrated development of the region, protection of hydrological systems and ecosystems of national significance.

PROGRAMS AND OBJECTIVES:

1. Public Use Program

- Develop actions in a participatory manner in the areas of environmental education, recreation, tourism, research and diffusion of information with local actors, by way of national and international support;
- Use the experiences generated through environmental education to promote a larger consciousness among children and youth regarding the importance and benefits of PNP.

2. Environmental Management Program

- Achieve management actions and participatory protection of PNP with the involvement of communities and institutions, through the management of economic resources and international support;
- Strengthen PNP's conservation and improve the services provided to the community by integrating all organizations.

3. Management and Administration Program

- Generate new initiatives and activate PNP and its different actor's actions, based on an agile, proactive, and planned administration.

systems and ecosystems of national significance. More specific objectives were also listed (Table 3).

Third, we learned about goals from Luis Medina (PNP Director). Director Medina listed four major goals or objectives. His goals are (a) to maintain vegetation and fauna in a natural state facing threats from logging important to the conservation and protection of the podocarpus tree, the only conifer of southern Ecuador; (b) to conserve and protect sample ecosystems of montane and lower montane forest ecosystems and humid and low humid forests; (c) to conserve vegetative cover as a protector of soil and water resources; and (d) to ensure that the park serves people for uses like ecotourism, recreation, research and environmental education. These are consistent with national policy goals and objectives listed in Table 3.

We can take these goal statements as authoritative working specifications of the common interest and look for practical ways to realize them.

To make the practical task easier, we need to identify specific indices of the goals and objectives. Indices can be tracked over time to see if trends (events and processes) are moving toward or away from goals. Indices suggested in the goals above include status of flora, vegetation, and fauna and selected human uses (e.g., ecotourism, recreation, research, and education). No doubt other indices could be devised and used to track progress toward goal attainment. In fact, indices on the problems identified in Table 1 and in the text below could be set up and continuously tracked.

We found that different authors and people that we spoke with want to track different "indices," even if they share goals. For example, some individuals and groups wanted to emphasize biodiversity goals and indices, whereas other people want to track fire frequency and extent, and still other people wanted to focus on water quality and quantity. And other people wanted to use different indices, such as agricultural activity, mining, logging, road building activities, poaching orchids and wildlife, and other features. Still other people wanted to track economic returns, tourism, and other variables. To address this diversity of interests, a complete list of goals and indices needs to be developed so that trend data can be gathered on important indices in a systematic way and shared with all interested parties. At present, different participants emphasize different goals and track different indices. They seldom share results with one another. This in itself is problematic. Having reliable knowledge about both content (substantive) and procedural (process) problems by tracking indices could greatly facilitate problem solving, cooperation, and goal attainment.

Problems

Problems are discrepancies between goals and actual or anticipated states of affairs, as noted above. Given the goals and objectives in Table 3 and the different indices being used to track trends, a number of people told us about discrepancies or problems that they see from their respective standpoint. What are the problems? We classified problems into content and procedural ones, with two kinds of procedural problems (social and decision process problems) in Table 4, 5, and 6. All are closely interconnected. The listings below are not in any particular order nor are entries organized into mutually exclusive statements. We made this listing based on what we were told by Ecuadorians and our own observations. No one person or group would necessarily agree with all entries in these three tables. Some people and groups see other people and groups as problematic and vise versa. Organizing this complex problematic listing into an overall problem definition that is tractable is a major challenge for all people interested in the future of PNP.

TABLE 4 Biophysical (Content) Problems (n = 33), in Random Order, for Podocarpus National Park, Ecuador, Identified During our Field Trip (March 10–19, 2005) Based on Interviews, Presentations, Conversations, and Our Own Observations

Illegal hunting may lead to a reduction in animal populations	Poor connectivity between protected areas	Palm extraction causes parrot habitat reduction around Tapichalaca Reserve
Cattle impacts on soils and vegetation in the Park's buffer zone	Local communities illegally harvest natural resources from PNP (hunting, logging, etc.)	Impact by road construction (in Cajanuma and other sites)
Deforestation caused by extensive cattle raising	Degradation of watersheds by fires, cattle, etc.	Access from San Luis to the South may further fragment the park
Landslides and soil instability reduces access (road between Loja and Zamora continually closes) and tourism development	Inadequate infrastructure	Colonization of the park in the south and southeast
	Mining in the center of the park	Lack of resources by the state
	Lack of seeds/seedlings of native tree species for reforestation	Difficulty in patrolling the park
Threats to Podocarpus trees (e.g., logging)	Low food security in local communities	Insufficient funding to run the park
Degradation of Watersheds	Insecure land tenure	There is no fire history or analysis of fire events.
Most of the reforestation projects use exotic tree species (mainly Eucalyptus and Pines)	Scarce reliable biodiversity information	No adequate job description for park ranger
	No fire prevention plan for the park and buffer zone	Private Conservation lands are fenced
No environmental police	Few resources to hire and train park rangers	No clear definition of PNP's buffer zone; no management plan for buffer zone
Poor road system in North and South of PNP limits market access and development opportunities	Limited resources of the "Universidad Nacional de Loja"—not able to make research contributions to PNP	
Statistics for Ecuador are not good; there is little reliable information		

Ecuadorians and others involved in this case need to undertake this distillation exercise using a full problem-oriented approach. They know the realities of the context much better than we do. Different individuals and groups of participants are organized around one or more problems. This creates diversified foci of attention for officials and the public. For example, conservation groups are organized around content problems (e.g., biodiversity). Citizens are organized around well-being issues (e.g., food, water, and shelter). Government is organized around authority and control issues and associated organization of these functions (e.g., money, staff, equipment). A full problem map should show what groups are affiliated with what problems.

How should trends be explained? Ultimately, all problems stem from participants' perspectives and their practices. Table 7 summarizes the basic discourse at play in the human social and decision process around PNP. At

TABLE 5 Human Social Process (Procedural) Problems (n = 27), in Random Order, for Podocarpus National Park, Ecuador, Identified During our Field Trip (March 10–19, 2005) Based on Interviews, Presentations, Conversations, and Our Own Observations

The extensive network of foundations and NGOs created by the Podocarpus Program are not integrated with current social processes and structures.	Inadequate interaction and coordination between Ministry of Tourism and of the Environment (lack of respect)	Economic interest behind road construction and mining
Poor coordination of public and private participants (e.g., tourism projects)	Zamoran institutions feel excluded from management and funding	Lack of common vision for tourism
Many communities do not like tourism	Weak interaction between the Direction of the Park and other stakeholders (lacks power, respect, and wealth)	ArcoIris dependent from TNC/CI funding; issues of legitimacy
Local people do not value the park	Road started to be built in Cajanuma by Municipality approved by the ministry of Environment	Business of road repair in the Loja-Zamora road institutionalizes landslides
Government agencies do not work well together/cannot coordinate	No clear land property status, no delineation of Park borders, weak land titling institution	Different perceptions between those who want to centralize and those who want to de-centralize
Some local people's attitudes are not aligned with conservation	Land of indigenous community (Shuar) in the southwest part of PNP is not yet legalized by government.	Competition of cheaper agricultural and cattle products from Peru since Ecuador's "dollarization"—affects local economy
Budget of ArcoIris creates jealousy among other conservation groups	Each tour operator and managerial institution have their own ecotourism plan.	Migration of Peruvians looking for salary paid in US dollars
In some cases there is no clear common agreement where the boundaries of the park and surrounding "Bosques Protectores" (protected forests) are, due to people's perceptions.	All want to be saviors of park, competition for funds and recognition	It is not clear how to get local participation to work.
Many park users don't pay the $10 entrance fee	Instability of political system	Difficulty of getting the people around the park to work together

present, participants, (individual and organizational) are more or less spread out along a continuum of the kind of changes that they see or feel are needed. At one extreme, there are interests that want to maintain the status quo. At the other extreme, there are interests that want reform (compare Tables 4 and 5). Many participants are scattered along the continuum between these two positions. The location of participants and their demands vary by issue and these can be mapped.

What might happen in the future? These many content and procedural problems will likely continue unabated if interventions are not used to move participants, the arena, and social and decision process forward to

TABLE 6 Decision Process (Procedural) Problems (n = 33), in Random Order, for Podocarpus National Park, Ecuador, Identified During our Field Trip (March 10–19, 2005) Based on Interviews, Presentations, Conversations, and Our Own Observations

- Director of the Park is not consulted in the implementation of activities developed by other actors (ministry of tourism, tour operating agencies, NGOs).
- Zamoran institutions feel excluded from decision process
- Ministry of Tourism does only promotion
- Ministry of Environment mainly does promotion, limited implementation
- Not enough coordination in road building between state organizations (ministries of Tourism and Environment) and other participants
- Evaluation of roads (through environmental impact statements) in hands of different agencies, permeable to particular interests if not participatory enough
- No way to effectively address regional conservation; example: protective forests and corridors vs. road access and mining development in Nangaritza
- Lack of guidelines for architectural development inside the Park, preventing "eye sore construction"
- Weak laws in relation to illegal trade of biodiversity—difficult to enforce them
- Not clear how to integrate legal, political, economical, cultural, and social information
- Lack of coordination of Programa Podocarpus with already existing organizations and participants to develop a conceptual project document and set of priorities
- Communities largely left out of decision over funding priorities in Programa Podocarpus
- Communities excluded from Tourist projects
- Lack of participation in decision over hydroelectric power plants inside Park
- No land-use planning by municipalities to decrease impacts
- Lack of proper process of defining Park's borders—contradictory signals to landholders and users
- Park's plans made by outsiders in the past—understood technical issues but not cultural, lasted 11 years, no implementation
- No involvement of local communities in the creation of "Protected Forests," they don't even have copies of the Management Plans
- No coordinated land planning between Loja and Zamora to minimize impacts
- Programa Podocarpus promoted ineffectual decision-making structure composed by several mushroom organizations
- Political instability—rapid turnover in governmental positions
- Poor organization within campesino/migrant communities
- Lack of involvement of local governments (municipalities) in the decision process
- Problems between the Ministry of Environment and INDA (National Institute of Agrarian Development—in charge of land titling)
- Unstable national government
- Ministry of the Environment has little control over the park
- No legal solution to private in holdings in PNP
- Little social information in the PNP management plan
- Problems with road planning
- The National Council of Sustainable Development (created in 2001), which is in charge of unifying the criteria of all involved Ministries, has never met.
- There is a need for better centralized control Conflict between the Mayor of Loja and the Regional Government
- Coordination between private and public actors is difficult

TABLE 7 A Classification of Participant's Views/Perspectives on Management Policy Problems in Podocarpus National Park, Ecuador

Discourse type	Kind of change needed (assumptions, judgments, contentions built in)	Nature of discourse (using language, "facts," and symbolism)
Status quo Interests	"Ordinary change" is called for, i.e., maintain the status quo or entertain very small changes; the present is taken as given and generally acceptable; change should consist of small, incremental adjustments, if any; the aim is to go slow and easy.	Maintain the present management system and address problems if they threaten people and their established practices.
Reform Interests	Significant change is called for; the present is taken as unacceptable; departures from current practices are needed, including the possibly of dramatic reform.	Reform the current management system, upgrade, modernize, and find a new formula for sustainable conservation and development.

define and address problems practically. Interventions should be based on a thorough problem oriented understanding of the context.

Alternatives

What are practical management policy strategies to move toward PNP goals? Currently, people's perspectives and practices are mediated in part by the kinds of resources they have available. Changing the distribution of resources (e.g., the values of respect, skill, knowledge, well-being, wealth, affection, rectitude, power) can provide solutions. Perspectives and practices are typically institutionalized. So, education and economic incentives, as well as rearranging organizations, are needed to fundamentally change processes and events in the PNP region to be more sustainable in the common interest. We offer three alternatives here. First is the status quo option. It requires that nothing be done different from what is now happening. This option will produce more of the same kinds of problems and participant interactions. Both content and procedural problems will likely continue and perhaps grow in complexity. Finding and securing the common interest will remain elusive or even out of reach through this option.

Second is to actively carry out a fully problem-oriented examination of the current situation (Table 8). This option promotes problem orientation, which can be carried out for each problem selectively, such as tourism,

TABLE 8 An Outline of the Problem-Oriented Approach Used in this Article and Volume to Understand Management Policy Dynamics in Podocarpus National Park, Ecuador, and find Practical Ways to Improve Matters. Users of this Approach Should Answer all the Questions

Goals (indices)	What's happening?	Why?	Future?	Does a problem exist?	Solutions? alternatives
1. Environment	?	?	?	?	?
2. Social process	?	?	?	?	?
3. Decision process	?	?	?	?	?

biodiversity, fire, roads, poverty, markets, and so on at either small or region-wide scales (comprehensively). It can also be used to examine all these cases as a whole. In this option, all the tasks of problem orientation need to be attended to in an explicit and systematic data-grounded way. Users of problem orientation should be specific about goals, problems, and alternatives. Being fully problem oriented means moving beyond the mere listing of undesirable trends and general problems to specific problems that can be dealt with practically. Problem orientation can be carried out by each organized interest from its own standpoint. However, each interest should keep the overriding common interest goals of PNP in sharp focus. This will allow them to best use their limited resources. Finally, all interests should try and find ways to openly communicate and compare problem maps with one another. Sharing perspectives and data is a means of integration that can lead to future cooperative work.

Third is to organize effective management decision processes for better outcomes. PNP and its management policy are about the water, plants, and animals that inhabit it, to be sure. It is also about the people who live in the region and who are affected directly or indirectly by management, how human social process works, and how decision making is carried out. A generalized decision-making process is presented in Table 9 (see Clark & Ashton, 2004). High quality natural resource management comes about because of high quality decision-making processes. There is a direct relationship. Development and conservation that are integrated and sustainable will only come about if, and only if, people (those with authority and control) enter into a management decision-making process that integrates diverse interests around common interest goals (see Cherney et al., this volume). One example where this alternative was recommended and detailed was Ziegelmayer, Clark, and Nyce (2004). These authors looked at biodiversity and watershed management in the Condor Bioreserve, Ecuador. Regardless of the way a person looks at it, either from a conservation (ecological) or development (from a human social process) standpoint, successful management of PNP requires an effective management decision-making process.

This alternative promises the greatest gains. All participants should look for ways to cooperate and compliment one another in achieving common-ground

TABLE 9 An Effective Decision-Making Process for PNP Must Include the Following Features or Elements (Column 1). These Features are Explained in Column 2 and in the text. The Present Situation in the PNP Arena is Described Briefly in Column 3. For Improved Management Policy to Come About, The Decision-Making Process Described in Column 3 Must be Made to Conform to the Features in Columns 1 and 2 (See Lasswell & Mcdougal, 1992 for full Explanation). Examples from Tello et al. (1998)

1. Decision process activities in the common interest	2. Definitions, descriptions, explanations of terms in column 1	3. Current situation in PNP Arena, A diagnosis
Prescription (laws, acts, norms, should be authoritative and controlling): Goals Contingencies Rules (norms), authoritative signature Sanctions, control intent Assets (resources)	For any prescription to aid people, secure the common interest goals, contingencies, rules, sanctions, and assets must be specific and realistic. Many times these elements are not attended to adequately. Sometimes goals are clear but not assets (resources) provided to meet goals. Standards: meet expectations, effective, balanced, inclusive, and future-directed Avoid: not attending to goals, contingencies, rules, sanctions, and assets	At present general goals seem clear, but the contingencies, rules, sanctions, and assets of the PNP prescription are weak. These need to be specified and adequate resources (means of control) be made available. Examples: ambiguous government policies; lack of political power for PNP; inadequate budget of PNP; poorly defined park boundaries; Overlapping land tenure
Planning (intelligence)	Information relevant to decision making is gathered, processed, and disseminated. Standards: factual, complete, targeted in finding facts, available to everyone Avoid: inadequate analysis of the problem, over-study of problem(s)	At present intelligence is limited. Examples: too little organized, systematic fact gathering, processing, and dissemination to all interested participants
Open debate (promotion)	Active open debate about what to do Standards: rational, integrative, holistic, effective Avoid: inadequate open debate	At present debate is active; it needs to be more problem oriented and effective. Examples: political conflict between Loja and Zamora
Enforcement (invocation)	Rules are applied and enforced. Standards: prompt, open, dependable, common interest focused, non-provocative, effective Avoid: weak enforcement	At present rules not fairly and fully applied or enforced, nor are resources available to do so. Examples: lack of help from law enforcement?

(*Continued*)

TABLE 9 (*Continued*)

1. Decision process activities in the common interest	2. Definitions, descriptions, explanations of terms in column 1	3. Current situation in PNP Arena, A diagnosis
Implementation (application)	Programs are made to work in actual situations. Standards: meets rules, contextual, unbiased, works in practice, it helps Avoid: poor coordination, bureaucratic over control, benefit leakage	At present implementation is weak and incomplete. Examples: lack of government coordination; managerial limitations of PNP; Inegative local attitudes toward PNPInadequate number of personal in PNP; problems continue—deforestation, land conversion by fire, cattle ranching, development of roads, hunting, fishing, wildlife traffic, timber extraction, illegal orchid harvesting, gold mining by both small scale and commercial interests
Monitoring and Evaluation (appraisal)	Appraise whether goals are being met and whether programs are working, activity by activity. Standards: realistic, ongoing, unbiased, and practical Avoid: failing to learn from experience, insensitive to criticism	At present too little systematic monitoring and appraisal; learning is limited. Examples: very limited systematic evaluation
Succession/Exit Strategy (termination)	What's next? Moving on, adapting policy and program, exiting the prescription Standards: prompt, holistic, factual, ameliorative, supportive Avoid: failure to terminate, pressure to continue unsuccessful policies	This activity not being considered at present. Examples: little discussion about which ongoing policies and programs are counter to PNP goals (prescription)

goals for PNP. New partnerships are possible, as are more integrated (win/win) outcomes in common interest. PNP is managed presently through institutional structures set up to make important decisions about the future. New structures are being called for and tried by people who see that significant change is needed in how decisions are made and how values are shaped and shared. Conflict in the PNP arena is really over how this structure will be defended or changed and what goals it will serve. Successful PNP management will come about only if leaders and others explicitly overcome the decision process' present weaknesses. This means that all parties must work

to upgrade decision processes to meet the recommended standards (Table 9). Ideally these activities and processes should all be directed toward finding common ground among people with differing views of the Park and its future. This is a job of clarifying, securing, and sustaining the common interest.

CONCLUSIONS

Podocarpus National Park faces many management and policy challenges, including those described in the literature and others that we were told about or observed in our rapid appraisal field trip to the region in March, 2005. Official goals of PNP are clear and in the common interest. At present many problems exist in both content (e.g., soil, water, biodiversity, fire) and in procedure (e.g., social and decision-making process, including management rules are not clear nor adequately enforced, resources are scarce, coordination is weak, appraisal and learning are limited). The complex mix of problems makes achieving PNP's goals difficult. This situation can be helped, if participants use a more explicit problem-oriented approach, so they can better diagnose actual problems and invent strategies to address the identified problems most practically. Problem orientation can help people gain greater clarity on the social process they are caught up in, as people, values, institutions, and resources come together in PNP's overall management decision process. The approach to problem solving recommended here—a problem-oriented one—can help users be more systematically grounded in actual events, processes, and data as they explore trends, conditions, projections, work to create a useful problem definition, and explore alternatives to address problems. This approach offers improved ways to upgrade rationality in problem solving. Work on the ground should strive to build prototypes (i.e., small scale interventions) that target important, real problems. In turn, prototyping can be used to improve matters. Lessons can be harvested from these prototypical projects and dispersed widely to all interested people. The expected benefits from using a mixed strategy to address problems, including problem orientation, improved decision making, and prototyping, offer a promising a path toward sustainability.

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