Conflicts over the management of natural resources are increasing, at first many of these seem inevitable and irresolvable. Various techniques have been developed to ease or solve existing or future conflicts in a productive way. One important aspect in this context is the degree of public participation.

In June, 1996, the European Forest Institute arranged a conference entitled "Conflict Management and Public Participation in Land Management". The objectives of this conference were to present basic theories of conflict management and public participation, to review state of the art research, and to obtain an overview of the currently applied approaches and methods in participatory planning within the domain of land management.

ISBN 952-9844-28-X
ISSN 1237-8801

Conflict Management and Public Participation in Land Management

Birger Solberg
Saija Miina
(eds.)

European Forest Institute

Conflict Management and Public Participation in Land Management

EFI Proceedings No.14, 1997

CONFLICT MANAGEMENT AND PUBLIC PARTICIPATION IN LAND MANAGEMENT

Proceedings of the International Conference
Joensuu, Finland
17 - 19 June 1996

Edited by Birger Solberg and Saija Miina

European Forest Institute

EFI Proceedings No. 14, 1997

Conflict Management and Public Participation
in Land Management

EFI Proceedings No. 14
Edited by Birger Solberg and Saija Miina

The papers in this book comprise the proceedings of the seminar mentioned on the cover and title page. They reflect the authors' opinions and do not necessarily correspond to those of the European Forest Institute. The papers are published as presented in the interest of timely dissemination.

Publisher: European Forest Institute
Torikatu 34
FIN-80100 Joensuu
Finland

Phone: +358 13 252 020

Fax. +358 13 124 393

Email: efisec@efi.joensuu.fi

WWW: http://www.efi.joensuu.fi/

Cover photo: Kari Saukkonen,
Luonnonkuva-arkisto

Layout: Katriina Palviainen

Printing: Kirjapaino Hyvätuuli
Joensuu 1997

ISSN 952-9844-28-X
ISBN 1237-8801

CONTENTS

FOREWORD

Conflicts over the management of natural resources are increasing, at first many of these seem inevitable and irresolvable. Various techniques have been developed to ease or solve existing or future conflicts in a productive way. One important aspect in this context is the degree of public participation.

This report is based on the papers presented at the conference «Conflict Management and Public Participation in Land Management» arranged at the European Forest Institute (EFI) in June, 1996. The objectives of the conference were to present basic theories of conflict management and public participation, to review state of the art research, ant to obtain an overview of the currently applied approaches and methods in participatory planning in the domain of land management.

The conference brought together 71 researchers and practitioners from 17 countries. The participants included researchers, administrators and practitioners working in the field of land management. The conference was followed by a summer school with the same topic at Koli National Park.

These proceedings include the 26 papers presented at the conference and summer school, and we hope they will form a constructive basis for further discussion, progress and even education within this field. Several of them have been written by practitioners. This is a welcome contrast to the more theoretical type of papers presented by researchers, and indicates a preference for a mix of researchers and practitioners, which was one of the aims of the conference.

At the end of the conference, the participants discussed possible future activities of EFI in the field of conflict analysis and resolution and public participation in environmental conflicts. There was general consensus that EFI has much to offer in this area. A summary of the discussion can be found at the end of these proceedings.

We would like to thank the keynote speakers and participants for their contributions and presentations. We would also like to thank the Finnish Forest and Park Service and the Finnish Forest Research Institute for their excellent assistance in organising the field excursion and summer school, and the Finnish Academy of Science and the Ministry of Environment for their financial support. Special thanks go to the other members of the planning committee Prof. A. Reunala (Finnish Forest Research Institute), Mr. P. Wallenius and Mr. T. Loikkanen (Finnish Forest and Park Service), Mr. M. Turtiainen (University of Helsinki), and to the staff of EFI who efficiently organised and managed the conference.

Birger Solberg
(Chairman of the conference)

Saija Miina
(Main conference administrator)

Birger Solberg and Saija Miina (eds.)
Conflict Management and Public Participation in Land Management
EFI Proceedings No.14, 1997

OPENING ADDRESS

Sirkka Hautojärvi
Ministry of the Environment
Finland

1. CONFLICTS MUST BE FACED

Conflicts have always been a part of human life. Without conflicts, there is rarely any progress. It is our task to face, cope with and manage conflicts. Avoiding conflicts by covering up or hiding plans and projects generally leads to greater conflicts in the end. Not only will the economic costs be higher, but citizens will lose faith in the decision-making process and in the decision-makers themselves. Ultimately, mistrust can destroy the best conflict management.

Financial gains and losses, as well as individual perceptions induce conflicts. We have a tendency to underestimate the role of group dynamics in this connection. Problems will arise when a homogeneous group is asked to change and adapt its behaviour from its traditional ways to new ways of doing things. This is a phenomenon that can be met also in the case of the so-called Finnish "forest-war". It was a clash between two different cultures.

In the early stages of planning a project, it is most important to be open, to build trust, to make contacts, to promote cross-sectoral co-operation and provide as much information as possible. If these elements are ignored, corrective measures will be needed later to solve the conflicts which will arise. Conflicts that occur later in the planning process are usually more difficult to manage than those that are dealt with at the beginning. This I know from experience; one aspect of my work has been to be the third party, to smooth tempers after a serious disagreement.

Generally, when local people are invited to participate in the planning and decision-making of a project act that concerns themselves, and if they are provided with sufficient ecological knowledge, they are the best caretakers of their environments. Conflicts often arise even between the local people themselves, so these disputes also need to be addressed early in the planning stages. Local people do need to be included at all stages of the process, but the key is knowledge of the issues. Finland provides mechanisms for public participation through our planning and building legislation Acts and through environmental impact assessments. Most people in Finland are aware of environmental matters, but their level of knowledge of these issues needs to be increased.

Birger Solberg and Saija Miina (eds.)
Conflict Management and Public Participation in Land Management
EFI Proceedings No.14, 1997

2. ENVIRONMENTAL IMPACT ASSESSMENTS

Environmental Impact Assessments are a modem tool and process for facilitating conflict management. The EIA Act came into force in Finland in 1994. The aim of the act was to further the assessment of environmental impacts and public participation in planning and decision-making. Environmental considerations are now integrated into the existing planning and permit procedure. The Act requires the authorities to assess the environmental impacts when preparing policies, programmes and plans which may have considerable environmental consequences once completed.

In the EIA process, the developer prepares an assessment report that provides information on the project and its various alternatives, together with a comprehensive evaluation of their environmental impact. The authorities, as well as the citizens in the affected area, will take part in the entire process. Both will express their comments first on the impacts to be studied, during the scooping phase, and later on the assessment report itself. Finland wants to ensure that the findings of the environmental studies are taken into account during the decision-making. The Ministry is intensifying training and providing information on the EIA process to employees, industrial organisations, other authorities and, of course, public interest groups and private citizens.

3. BIODIVERSITY AND FORESTRY

I referred earlier to a conflict concerning the status of the northern forests in Finland. This situation illustrates the typical reactions to cultural changes and new ways of doing things. Maintaining biodiversity in forests is not a new concept, but it is a relatively new issue in forest management in Finland. Including ecological values of forests into forest management is a new way of doing business, which is at odds with the traditional ways of managing forests. Typically, forests have been managed and looked after by forest experts and local land owners. But changes in ecological values and markets have caused us to modify the old ways. Changes in the markets were still slowly noticed in our country. At first the forestry experts rejected the changes, believing that no new action was needed because Finland was already environmentally advanced and the forests were well-cared for.

However, other groups embraced the concept of biodiversity and gradually some of these new ideas were officially adopted. A small conflict escalated into a larger conflict and the different groups clashed over the traditional ways and the new ideas. The conflict was taken up by media, which allowed the forest conservationists to draw attention to their groups, and their clashes with the forest experts and forest owners. The issue was, and still is, a volatile one, change and adoption are never easy. But luckily the conflict moved away from the eye of the TV-camera into the negotiation room where it belongs. The situation is calmer now and the new ways of doing business are being discussed by almost everyone involved. Many new actions are also under way.

4. EMOTIONS COLOUR OUR LIVES

When conflicts do occur, it is best to face them and manage them, the earlier the better. A scientist once said, when explaining his behaviour, "I dogmatise and am contradicted, and in this conflict of opinions and sentiments I find delight". I agree with his words, but I would say that, in addition, I work to find a way to end the conflict. Some people do find delight in conflicts, but I believe that the delight is even greater after a consensus is reached. Again and again we will face the same phenomena, known from the past and described by the historians. Purely intellectual ideas, such as that the Earth moves around the sun, instead of vice versa, can arouse intense emotion and profound hostility. In ancient Greece the concept of infection in diseases was rejected precisely because it was developed by the 'barbarians'. Feelings and emotion colour our lives, and these need to be considered in conflict management. It is not just a question of techniques, but also of understanding the other point of view.

I THEORY AND METHODS

FOUNDATIONS OF NATURAL RESOURCE CONFLICT: CONFLICT THEORY AND PUBLIC POLICY

Gregg B. Walker and Steven E. Daniels
Oregon State University
USA

ABSTRACT

Conflict is an inevitable part of human interaction, occuring in every arena and setting of human endeavor. Natural resource policy decision-making defines one setting in which conflict is significant. Natural resource policy decisions are frequently controversial and conflictual, arising from a complex array of factors, such as numerous parties, multiple issues, deeply held values, cultural differences, scientific uncertainly, and legal constraints. This essay presents a foundation for understanding complex natural resource conflicts. It initially offers a primer on the fundamentals of conflict and its management. The paper subsequently discusses important factors in natural resource policy conflict situations.

Key words: Conflict, conflict management, conflict assessment, negotiation, natural resource policy, public lands policy, environmental policy, public participation, collaboration

1. INTRODUCTION

For as long as humans have encountered one another, there has been conflict. Conflict is an inevitable part of human interaction, regardless of the arena in which or level on which it occurs. "Conflict occurs in almost all social settings", write Joe Folger, Marshall Scott Poole, and Randall Stutman in Working Through Conflict. "As we enter more complex relationships and become involved in more diverse and public settings", they explain, "we often find that conflicts remain remarkably similar to those in our early lives" (1997:6).

Birger Solberg and Saija Miina (eds.)
Conflict Management and Public Participation in Land Management
EFI Proceedings No.14, 1997

Natural resource decision-making defines one setting in which conflict is significant. The management of natural resource conflicts, both within natural resource organizations and the public sphere, involves decisions that often seem inherently controversial. Management decisions that are public, such as natural resource actions taken by government agencies, will greatly interest many parties who may hold very different views about now the particular natural resource policy situation should be managed. We may compare natural resource conflicts to the kinds of interpersonal conflicts we may have experienced in our families and among friends, but in actuality natural resource policy conflicts are much more complex. They arise within some context which typically is defined by a complex array of factors, such as numerous parties, multiple issues, deeply held values, cultural differences, scientific and technical uncertainty, and legal and jurisdictional constraints. A number of these factors will be highlighted in the latter part of this essay (for a more complete list and discussion see Daniels et al. 1993, Daniels and Walker 1993, and Walker and Daniels 1994).

Methods for effectively managing natural resource conflicts must be responsive to the complexities of those conflicts. Understanding natural resource conflict complexity begins with a basic review of the nature of conflict situations. This essay offers a foundation for understanding complex natural resource policy conflicts. It first offers a primer on the fundamentals of conflict and its management. Secondly, the paper highlights important natural resource public policy conflict factors.

2. THE NATURE OF CONFLICT

In its simplest form, conflict consists of incompatibility involving "what" (issues), "who"(parties), "when" (situated in time and place), "how" (how addressed or responded to), "results" (some outcome), "by whom" (how decided). Still, conflict seems tomean many things to many people. But conflict is rarely considered "simple". AsFolger, Poole, and Stutman remark, "conflict is one of the most dramatic - and sometimes traumatic - events in life" (1997:12).

2.1 Common images of conflict

We have asked college students in conflict management and dispute resolution classes to provide examples of "conflict". The results are quite varied. Students report "fight with my boyfriend", "argument with my boss", "my parents' divorce", "not getting classes", "financial aid hassles", "budget cuts", "the spotted owl mess", "the Arab-Israeli conflict", "Northern Ireland" and the like as illustrations of conflict.

These responses reveal common images of conflict. People typically associate conflicts with fights, games, debates, squabbles, arguments, shouting matches, violence, tension, and anger. Hocker and Wilmot (1995) present a number of prevalent images of conflict as metaphors. They note that people often characterize conflict as war, disease, struggle, a trial, explosive, and as a mess. Such images suggest that "many people view conflict as an activity that is almost totally negative and has no redeeming qualities" (Hocker and Wilmot 1995:5).

A recent study of conflict metaphors further illustrates this point. McCorkle and Mills (1992) surveyed 349 undergraduate social science students at a western United States University about their past interpersonal conflicts. The researchers' questionnaire asked respondents to identify conflicts they had experienced, indicate who they were with and what they were about, and write a paragraph describing what each conflict was like. The researchers analyzed these paragraphs to determine what metaphors were employed to describe the conflicts. They found a variety of metaphor types (conflicts represented as animals, natural processes, one way communication, confinement, etc.) and concluded the metaphors generated were consistently negative. "None of the metaphors were positive", McCorkle and Mills remark, and "this appears to confirm the EuroAmerican cultural assumption that conflict is by definition negative" (1992:63).

2.2 Scholars' views of conflict

While some people may assume that conflict is by definition negative, conflict scholars do not hold this view. A brief review of how leading scholars define conflict reveals that conflict is not inherently positive or negative. Rather, it has the potential to be either. Table 1 offers a compendium of scholars' conflict definitions and the key terms they include.

Table 1. Definitions of conflict.

Author(s)	Definition	Key Terms
Coser 1956	Social conflict is a struggle between opponents over values and claims to scarce status, power and resources.	struggle opposition scarcity
Schelling 1960	Conflicts that are strategic are essentially bargaining situations in which the ability of one participant to gain his ends is dependent on the choices or decisions that the other participant will make.	strategy bargaining dependence
Deutsch 1973	A conflict exists whenever incompatible activities occur . . . one party is interfering, disrupting, obstructing, or in some other way making another party's actions less effective.	incompatibility interference effectiveness
Wall 1985	Conflict is a process in which two or more parties attempt to frustrate the other's goal attainment . . . the factors underlying conflict are threefold: interdependence, differences in goals, and differences in perceptions.	goals interdependence perceptions
Pruitt and Rubin 1986	Conflict means perceived divergence of interest, or a belief that the parties' current aspirations cannot be achieved simultaneously.	interests aspirations beliefs
Conrad 1990	Conflicts are communicative interactions among people who are interdependent and who perceive that their interests are incompatible, inconsistent, or in tension.	communication interdependence tension
Tjosvold and van de Vliert 1994	Conflict - incompatible activities - occurs within cooperative as well as competitive contexts . . . conflict parties can hold cooperative or competitive goals.	incompatibility cooperation competition
Folger, Poole, and Stutman 1997	Conflict is the interaction of interdependent people who perceive incompatible goals and interference from each other in achieving those goals.	interaction interdependence incompatibility

As Table 1 reveals, these definitions have much in common. First, they indicate the inevitability of conflict in human affairs. Second, they reveal key features of conflict situations. Many of the definitions, for example, stress that conflicts involve interdependent parties who perceive some kind of incompatibility between them.

2.3 Central elements of conflict situations

From the above definitions, we can conclude that conflicts generally involve:

- Perceived incompatibility
- Interests, goals, aspirations
- Two or more interdependent parties
- Incentives to cooperate and compete
- Interaction; communication
- Bargaining/negotiation
- Strategy/strategic behavior

A number of these key elements will be discussed more extensively.

2.3.1 Incompatibility

Running through these examples is a central, defining feature of conflict: incompatibility. Deutsch writes that "a conflict exists whenever incompatible activities occur . . . an action that is incompatible with another action prevents, obstructs, interferes, injures, or in some way makes the latter less likely or less effective" (1973:10). Incompatibility may appear in conflict as different interests. "Conflict", Pruitt and Rubin propose, "means perceived divergence of interest, or a belief that the parties' current aspirations cannot be achieved simultaneously" (1986:4).

2.3.2 Goals and aspirations

Situations become conflictual when incompatibility arises about something. That "something" is a goal, objective, or aspiration concerning some issue. Issues are typically the substance of disputants' "talk". Conflict may involve various kinds of issues: substantive or content, procedural, and relationship. Substantive matters include tangible (observable, definable, measurable) elements parties perceive; "what to do, what decisions to make, where to go, how to allocate resources, or other externally objectifiable issues" (Hocker and Wilmot 1995:46). Parties may experience conflict about the "rules" that guide their interaction, including how decisions are made; the matter of procedural issues. Discussion of procedural issues may need to precede discussion of substantive issues. Procedural issues are generally tangible. Relationship issues embrace intangible, subjective material: "each party's importance to the other, the emotional distance they wish to maintain, the influence each is willing to grant the other, the degree to which the parties are seen as a unit, or the rights the parties" accede

to one another (Hocker and Wilmot 1995:48). Power, authority, responsibility, control, and leadership may appear as relational issues. A type of relationship issue involves identity concerns. Identity refers to an individual's identification with a group that shares symbols, meanings, and norms/rules for conduct (Collier and Thomas 1988). Within interpersonal relationships, people negotiate social role and personal identities (Ting-Toomey 1985). Identities provide individuals with purpose, meaning, and a sense of worth. They can be broad in scope, like nationalism, or narrow in scope, such as identification with an individual or even personality type. Typically intangible, identity issues can feature concerns about self-esteem (Hocker and Wilmot 1995), acknowledgement, achievement, reputation, and image or "face" (Folger, Poole, and Stutman 1997).

Conflict issues are characterized not only by type but by the nature of the incompatibility as well (Wehr 1979). According to Wehr (1979), incompatibility may be (1) fact-based: disagreement over what are the "facts" of the issue; what is true or accurate; what is "reality", (2) values-based: disagreement over what should be the determinants (criteria, bases, priorities) of a policy decision, a relationship, or some other issue in conflict; (3) interests-based: disagreement over who will get what in the distribution of scarce resources, whether tangible or intangible (e.g., land, economic benefits, rights, privileges, control, respect); (4) jurisdiction-based: disagreement over who has authority or jurisdiction concerning the problems and issues of the conflict; (5) person-based: disagreement pertaining to personal factors, such as interaction styles, idiosyncratic actions, personality-related behaviors, effects of the physical setting, and the like; or (6) history-based: disagreement related to the history of the issue(s), the conflict, and the conflict relationship, as perceived by the parties in conflict. We add to Wehr's list a seventh: culture-based. Disagreements emerge that pertain to cultural orientations, world views, and identities. Parties' different cultural foundations, when not addressed, may contribute to misunderstanding.

Parties in conflict have goals, preferences, aspirations, and interests about the issues they have identified. These objectives mirror their understanding of the way(s) in which those issues are incompatible. In any given situation issues may involve a number of different bases of incompatibility. Public policy conflict issues, for example, often include all seven in varying degrees.

2.3.3 Parties/roles

Parties are entities (individuals, groups, organizations, governments) capable of making decisions directly or indirectly related to the conflict. They have a stake in the outcome. Three kinds of parties may appear in any conflict situation. Primary parties are major players in the conflict, primary parties perceive that their goals or aspirations are incompatible with one other and interact directly with each other in pursuit of their objectives. Secondary parties have a vested interest in or may be affected directly by the conflict and its outcome, but for some reason (such as inadequate resources, lack of access, perception of inappropriateness), are not directly involved. Secondary parties are potential coalition members, and may become primary parties at some point.

Peripheral parties have an interest in the conflict and outcome but are not affected directly. The media and "general public" may be peripheral parties in a conflict. Groups that are initially peripheral parties may evolve into either secondary or even primary parties.

A party may enact a variety of roles in a conflict situation. The roles may affect the choice of strategies and tactics employed. Possible roles include: (1) Direct conflict party - In this role, the party interacts and negotiates for her/himself; (2) Conflict party as agent - In this role, the individual interacts or negotiates on behalf of someone else (e.g., an attorney); and (3) Secondary or indirect conflict party - In this role, the individual uses a conflict agent; the conflict party advises the agent and may give the agent responsibility, while maintaining decision-making authority.

Related to a conflict party's roles is her or his responsiveness in those roles (Druckman 1977). In any given negotiable conflict situation, a disputant must weigh and balance responsiveness and accountability to a number of parties. These include the conflict party's responsiveness to him or herself, the conflict party's responsiveness to the other direct conflict party, the conflict party's responsiveness to his or her own primary constituency, the conflict party's responsiveness to secondary parties (those that influence self or other), the conflict party's responsiveness to the public and community, the conflict party's responsiveness to the media, and the conflict party's responsiveness to precedent and principle.

Focusing on the conflict parties introduces the idea of conflict interaction and the ways in which parties process information during that interaction. Conflict research from the field of cognitive psychology reveals that conflict parties typically exhibit a variety of systematic errors or "cognitive biases" as they process information (Bazerman 1990 Bazerman and Neale 1992 Thompson 1990). One example of bias is oversimplification, particularly in the form of fixed pie bias. When conflicts arise, parties often assume that the competitive aspects of the situation far outweigh any opportunity for mutual gain (Neale and Bazerman 1985 Thompson 1991). This oversimplification amounts to viewing the situation as zero-sum or a fixed pie that must be divided between the parties. This bias reduces the likelihood that parties will perceive any collaborative or mutual gain potential.

2.3.4 Interdependence

As implied in scholars' definitions, conflict becomes significant communication interaction when it features perceived interdependence. "From a communication perspective", Hocker and Wilmot write, "conflict is an expressed struggle between at least two interdependent parties who perceive incompatible goals, scarce resources, and interference from the other party in achieving those goals" (1995:21). In a similar vein, Wall proposes that "conflict is a process in which two or more parties attempt to frustrate the other's goal attainment . . . the factors that underlie conflict are threefold . . . interdependence, differences in goals, and differences in perceptions" (1985, 155). Goal interdependence is an indicator of collaborative potential. Consequently, the extent to which goals are interdependent will most directly affect communication patterns in conflict (Tjosvold 1990).

An individual who perceives incompatibility but not interdependence may not consider conflict interaction, such as negotiation. A high power person may decide unilaterally to resolve the conflict by presenting a promise or threat, or some other way of gaining compliance. A low power individual may decide unilaterally to accommodate, withdraw from, or avoid the conflict. With the disputants perceiving interdependence comes the prospect for direct, constructive communication to deal with the conflict. Interdependence implies that each party has enough power (not necessarily equal) to warrant joint decision making (Bacharach and Lawler 1981).

2.4 Conflicts are situational

As the discussion to this point implies, conflicts do not occur in a vacuum. Deutsch (1973) notes that conflict, as social interaction, occurs in situ; in an authentic setting.

> Social interaction takes place in a social environment - in a family, a group, a community, a nation, a civilization - that has developed techniques, symbols, categories, rules, and values that are relevant to human interactions. Hence, to understand the events that occur in social interaction one must comprehend the interplay of these events with the broader social context in which they occur (1973:8).

The conflict situation, like conflict itself, is multi-faceted. Conflicts occur on many levels, such as interpersonal, intercultural, group, or organizational. Putnam and Poole (1987) refer to levels as "arenas". They note, for example, that "relationships between disputants, issues, contextual features, and treatment of communication differ somewhat across the four arenas" of organizational conflict: interpersonal, bargaining/ negotiation, intergroup, and interorganizational. "For instance", Putnam and Poole explain, "since interpersonal conflicts center on individuals and interorganizational disputes generally involve collectivities, the message form, substance, and patterns of communication would typically reflect these diverse parties and their unique features" (1987: 551).

Conflicts take place in varied settings. The public policy realm alone includes numerous conflictual settings, such as natural resource, health care, immigration, welfare, foreign relations, and so on. Conflicts in such settings may include impersonal conflict. "Impersonal" characterizes conflicts individuals encounter with an organization. People experience problem situations with organizations in which they may feel relatively powerless. They perceive incompatibility but may be frustrated dealing with an organizational bureaucracy that appears nonresponsive; maintains decision-making ambiguity; and seems insulated against criticism and change. The college student who gets the "run around" trying to obtain financial aid or schedule classes experiences conflict with the impersonal university. The taxpayer who receives an audit notice experiences conflict with the impersonal national revenue service. Before these impersonal conflicts can be resolved through direct, constructive communication, the "impersonal" organization must perceive interdependence. If not, that organization will likely not see a conflict. The individual has a problem with the organization but the organization does not necessarily have a problem with the individual; any "conflict" remains impersonal. In order to resolve this conflict through a joint communication effort, the conflict must be transformed to one in which the parties perceive interdependence.

In addition to levels and settings, conflict situations encompass various scales. An immigration policy conflict, for example, may involve both community and regional interests. Conflicts over biodiversity and sustainability may occupy an international stage, while simultaneously being played out in national capitals as well as local communities.

Any conflict situation may include more than one level, setting, and scale. The most salient situational characteristics of a particular conflict situation will influence the role of communication in the management of that situation. Still, the dominance of a particular level, setting, or scale does not preclude cross-situational similarities. What happens in a level or setting may be explained in terms of other levels or settings (Putnam and Poole 1987:551). Whatever the conflict situation and how it is characterized, conflict management strategies must account for the particular situation in which a conflict occurs.

3. THE NATURE OF CONFLICT MANAGEMENT

It is one thing to recognize and define a conflict; it is quite another to attempt to manage it. In this next section, we highlight some fundamental elements of managing conflicts.

3.1 Conflict: management versus resolution

Many discussions of conflict turn to the term "resolution" to denote the settlement of a conflict or dispute. We agree that specific conflicts and disputes can be "resolved", but believe that many policy conflicts are both complex and enduring (often with social, political, cultural, economic, and scientific aspects). Complex conflict situations may never be "resolved", so that an agreement is reached that puts an end to those incompatibilities that caused the conflict. Rather, many complex conflicts can be managed well, so that the conflict situation, and the specific disputes that arise within them, do not become destructive. Consequently, we employ the term "management" as a broad notion that includes, but does not require "resolution". Furthermore, managing conflict accommodates the view of "situation improvement", that is, that desirable and feasible changes can be made in any problematic situation in order to improve that situation. This view is a central tenet of collaborative learning, a method the authors have developed to deal with natural resource conflict (Daniels and Walker 1996, Daniels et al. 1996).

3.2 Conflict management as progress

We define "management" as the generation and implementation of tangible improvements in a conflict situation. Improvements in the ways we manage a conflict situation constitute progress. Therefore, conflict management can be thought of as "making progress". Drawing upon our earlier discussion of conflict issues, conflict management involves making progress on the three fundamental dimensions of a conflict situation: substantive, procedural, and relationship. These dimensions can be viewed as part of a conflict management "progress triangle", as presented in Figure 1.

Portraying conflict management as a triangle of three interrelated dimensions - substance, procedure, and relationship - illustrates a number of things about managing conflicts. First, any conflict situation includes substantive, procedural, and relationship dimensions. Second, one addresses the conflict situation initially through any of the three dimensions. A health care policy conflict situation, for example, might feature substantive concerns related to health care costs and service delivery. A natural resource conflict situation such as salmon recovery might emphasize procedural and relationship factors related to the sovereign status of native peoples.

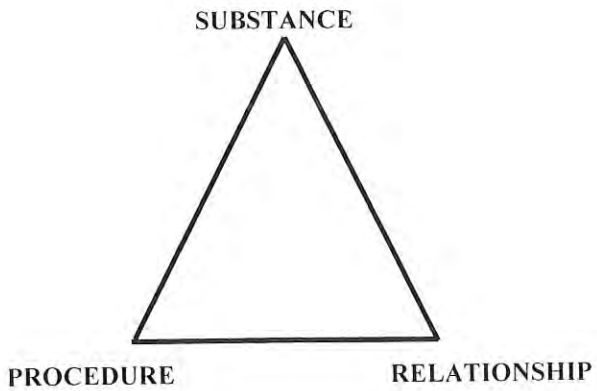

Figure 1. The conflict management progress triangle.

3.4 A simple conflict management framework

The Conflict Management Progress Triangle can serve as a basic model for understanding the nature of a conflict situation. Its design suggests the importance of

Figure 2 offers a basic conflict management framework. Competent conflict management begins with a thorough appraisal of the conflict situation. Conflict parties can develop their own assessment approach or may draw upon assessment criteria that scholars offer. Examples include the Conflict Mapping Guide (Wehr 1979); the Struggle Spectrum (Keltner 1994); the Conflict Assessment Guide (Hocker and Wilmot 1995); and the Conflict Analysis Framework (Carpenter and Kennedy 1988). These approaches generally feature questions about such elements as the parties involved, their perceptions, expectations, values, and goals; the issues; the conflict history and precipitating events; and past management strategies (Walker 1996).

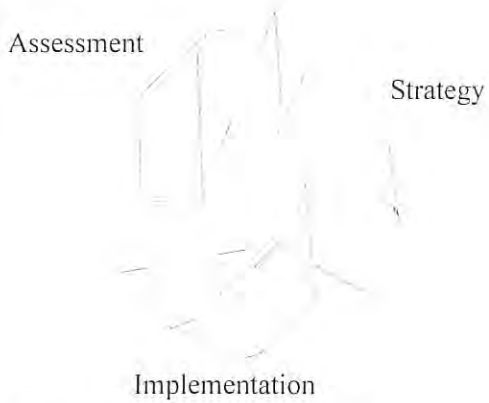

Figure 2. A conflict management framework.

3.5 Conflict management as strategic choice

Based on one's assessment of a particular conflict situation, the next step in constructive conflict management is the identification of alternative management strategies. Conflict interaction involves strategic choice as disputants strive to manage or resolve their differences (Pruitt and Rubin 1986; Lewicki et al. 1994).

3.5.1 Strategic alternatives

When conflicts become salient, people conscientiously address those conflicts in particular ways. They choose from a variety of strategies (group of tactics): contending (competitive, distributive); collaborating (problem-solving, integrative);

mixed-motive character of conflicts. In contrast, the other two strategies entail unilateral decision-making; each can be selected regardless of the disposition of the other party. Each strategy exhibits a passive rather than active response: accommodation or "giving in" is passive engagement, while the avoidance strategies of withdrawal and inaction indicate passive non-engagement.

3.5.2 Strategic choices and dual concerns

People respond to conflicts both spontaneously and intentionally. Unplanned conflict responses often result in escalation. The alternative is developing an intentional response - a conflict management strategy. The ways in which people intentionally respond to conflict situations and the strategic choices they make reflect concerns for both oneself and the other party or parties. These dual concerns can be represented as perpendicular axes (see Figure 3). As the model indicates, as a Party A's concerns for its own welfare increases, the likelihood of active engagement in a conflict situation increases. That active engagement may be competitive or collaborative, depending on the degree of Party A's concern for Party B's outcomes. Correspondingly, if Party A places much higher value on Party B's welfare than its own, Party A will likely accommodate as a passive response.

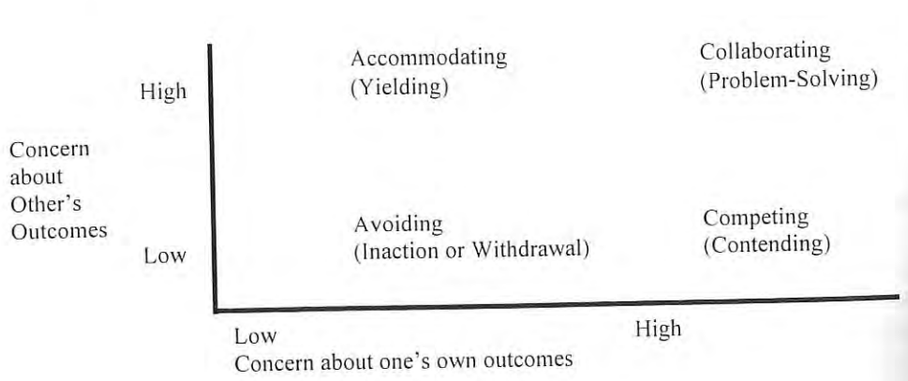

Figure 3. The dual concern model (from Pruitt and Rubin 1986, Rubin et al. 1994).

3.5.3 Competitive versus collaborative strategies

As noted above, competition and collaboration are active conflict management strategies. They occupy opposite ends of a strategy continuum, as Figure 4 displays.

Collaboration — Mixed — Competition

Figure 4. The collaboration-competition strategy continuum.

Conflict situations are inherently mixed motive; in any conflict situation there is some incentive to compete and some incentive to cooperate or collaborate. If a party's incentive is purely competitive then the conflict situation is fundamentally a game in which the party acts unilaterally whenever possible. If a party's motivation is completely cooperative then there probably is no meaningful incompatibility in the situation. Most conflict situations are neither purely competitive or cooperative; they contain some aspects of each. Consequently, strategies parties frequently employ are, to varying degrees, mixed. Collaboration, it should be noted, is not synonymous with cooperation. Cooperation can appear as part of an accommodative, compromise, or collaborative strategy. What distinguishes collaboration is the assertiveness of the strategy. It features a willingness to cooperate while remaining principled about one's goals and values. Pruitt (1983) calls this firm flexibility, an orientation in which one is firm about one's goals and objectives but flexible about how one achieves them.

Collaborative and competitive strategies are further distinguished in Table 2.

Table 2. Comparing collaborative and competitive strategies.

Factor	Collaborative	Competitive
Goal	Mutual Gain	Self Benefit
Resource View	Expandable	Fixed Pie
Relationship	Valued	Unimportant
View of Other	Partner	Adversary
Communication	Open	Controlled
Trust	High	Limited
Power	Shared	Coveted

As this brief summary table suggests, collaborative conflict management strategies, such as mutual gain negotiation (Fisher and Ury 1991) and transformative mediation (Bush and Folger 1994), reflect the parties placing significant value on the their relationship, the parties' willingness to trust and share power, open and constructive communication interaction, and creative approaches to resource distribution.

In policy conflicts, collaborative strategies emphasize processes in which interdependent groups work together to affect the future of an issue of shared interests (Gray 1989). In terms of natural resource conflict, a collaborative process differs

considerably from traditional public involvement models. There are a number of significant aspects to these differences:

- It is less competitive and more accepting of additional parties in the process because they are viewed as potential contributors more than as potential competitors.
- It is based on joint learning and fact finding; information is not used in a competitively strategic manner.
- It encourages exploration of underlying value differences, and recognizes the potential for joint values to emerge.
- It provides opportunities for addressing intangible concerns and relationship building, rather than simply concrete, immediate matters.
- It resembles principled or mutual gain negotiation, since the focus is on interests rather than positions.
- It allocates the responsibility for implementation across as many participants in the process as the situation warrants.
- It is an on-going process; the participants do not just meet once to discuss a difference and then disperse. However, collaborations may have a limited life span if the issues that brought the participants together are resolved.

4. NATURAL RESOURCE PUBLIC POLICY

Whether collaboration is an appropriate management strategy in a particular natural resource conflict situation depends on the nature of the situation. Assessing that situation should include a general understanding of the natural resource public policy context. This section of the essay discusses that context and conflict management implications.

4.1 Assessing the natural resource policy context

In countries with traditions of mixed ownership of land, that is, both private and public ownership, public and private lands have distinctly different rights. In the United States, for example, private lands are managed for the satisfaction of the owner, and the owner's rights are paramount on issues of land use and land access, within quite broad legal parameters. In contrast, in Finland and Sweden private landowners have primary say over the use of their land, but there is an everyman s right that provides the public with unobtrusive access to that land.

Public lands throughout the world are generally accessible to all citizens, with governments determining the use of those lands. In the United States, public lands constitute approximately one-third of the nation s land area, and up to eighty percent of some states in the Western U.S. These public lands, although classified in different ways (for example, as wilderness, as national parks, as national forests) and managed by a variety of agencies, are generally open to all residents and tourists.

4.2 Private land conflict

Just as private land and public land rights differ, so do private and public lands conflicts, too. Private land conflicts arise out of a number of different issues. Proximity issues refer to matters related to adjacent land owner and community interests. A private land owner when considering uses for her or his land, must consider how a particular land use will affect others in the local area, neighbors. Even though the private land owner has primary rights concerning the use of the land, local and state interests must be addressed. In the Pacific Northwest of the United States, the burning of grass seed fields has been curtailed because of air quality impacts.

A second category of issues related to private land conflict involves siting decisions. Public utility decisions, for example, may be for the common good but may have negative impacts for particular private landowners. A decision on where to put a landfill, power lines, a natural gas pipeline, a recreation complex, or a residential development may generate a "NIMBY" response from citizens, "not in my back yard" (Susskind and Cruikshank 1987).

4.3 Public land conflict

While many things have characterized conflicts over public lands in the United States during the later half of this century, one element stands out. The many parties concerned about natural resource issues have advanced different management goals. Some people, particularly those with strong economic values, have wanted public land management to emphasize commodity production. Other people, especially those with strong ecological values, have urged land managers to emphasize policies of environmental protection. Many citizens, though, seem to want both: maximum economic value along with maximum environmental value. United States government agencies, such as the Forest Service, have attempted to respond to these varied interests by pursuing a management philosophy of multiple use.

The multiple use philosophy has not minimized conflict. In fact, it may have contributed to many of the more contentious public land issues in the United States, such as harvesting old-growth timber in the Pacific Northwest; clearcutting as a dominant tree harvest practice on public forest lands; designating large tracts of public lands as wilderness, subsidizing livestock grazing on federal land, especially along sensitive streams; finding sites for the storage and disposal of nuclear waste, and protection for threatened and endangered species.

In addition to different management goals, what is there about land management that seems to create the challenges that confound successful policy formation and implementation? Several sources of complexity come to mind:

- Deeply Held Values
- Markedly Different Worldviews
- Multiple Parties
- Multiple Issues
- Legal Constraints
- Entrenched Conflict Industry

Together, these attributes make public land ownership as vexing a situation as a prudent person would undertake.

The deeply held values and markedly different worldviews mean that public lands disputes are little less that cultural conflicts. For many people in the mixed land (significant public and private ownership) regions, the activities that define their core identities may well involve the public lands. As one travels throughout the western United States, for example, one hears phrases like "I am a rancher", or "I am an elk hunter", not "I am in the beef industry", or "I like hunting elk". When public lands are at stake, the very places and activities around which people build their self-identities are on the table (Kemmis 1990; Brandenburg and Carroll 1995). When one combines this intense link to the public lands with the range of views about how those lands should be managed, it is easy to see why disputes over them can move quickly through merely heated into white-hot.

The multiple parties and multiple issues mean that public lands disputes are often structurally difficult to address. A rule of thumb in dispute resolution is that a large dispute has 12 or more participants; it is common to find several times that number in a public lands situation. Moreover, some may live a considerable distance away from the specific land in question if federal or national lands are involved. How to involve these distant stakeholders, and what weight to give their views, are confounding questions. It is similarly common to have participants come and go throughout the process, and to have significant differences between the views of organizations apparently share similar ideological positions. There are moderate environmental groups, and more extreme ones, just as there moderate and extreme commodity interests. It is not possible to invite one environmentalist and one commodity representative and have the range of interests adequately represented.

The legal constraints and entrenched conflict industry mean that any public land decision process has precise procedural requirements that must be met, and that there are well-organized groups of advocates who will pounce on procedural errors to overturn any decision that they feel does not meet their needs. As such, decision makers' range of process opportunities is substantially limited; they do not have carte blanche to assess a situation and craft a unique process that meets the special issues at hand. They must comply with a daunting array of judicial mandates, policy directives, and legal precedents. In addition, the policy gladiators employed by the various interest groups are rewarded for the quality of their battles, not their compromises; they are only too willing to exploit procedural errors and adopt extreme rhetorical positions.

5. HOW HAVE PUBLIC LANDS CONFLICTS BEEN ADDRESSED?

In the United States, government agencies responsible for managing the nations public lands prepare exhaustive environmental documents whenever significant management actions are considered. Under the requirements of the National Environmental Policy Act of 1969, federal agencies conduct environmental assessments and write environmental impact statements. These assessments typically address controversial management situations. In this context, government agencies have relied upon two approaches for dealing with public lands conflicts.

5.1 Formal public participation

First, agencies have employed methods of formal public participation. Public participation is predecisional communication between an agency responsible for a decision and the public. The most basic format for the public participation activities conducted by natural resource management agencies in the United States involves three specific activities: notification, issue surfacing, and comment on draft decisions. Notification is the use of various venues and media to communicate to the public that an agency decision process is beginning, and what might be known at that point about the basic structure of the decision process (issues, purpose, constraints, schedule etc.). Notification activities commonly include newsletters, direct mailings to interested individuals, and publication in the Federal Register. Issue surfacing, also referred to as scoping, is the canvassing of interested members of the public to determine what their interests, goals, and concerns might be, vis-a-vis the project. Typical issue surfacing involves workshops, field trips, soliciting letters, and one-on-one communication. Comment on draft decisions takes different forms, but the most common activities are public meetings/hearings and comment letters from the public.

This has been broadly criticized as ineffective. Although formal public participation processes provide easy access and predictability, the disadvantages concentrate on the impact of that access. It is immaterial that a process is convenient if being involved has no effect.

Research substantiates the sense that in many United States public lands conflicts most public participation efforts have few positive effects. Surveys indicate that substantial portions of participants feel that their input had little or not impact (Lyden et al. 1990, USDA Forest Service 1990), are dissatisfied or mistrustful (Dixon 1993), that they value interactive participation methods that involve two way communication and shared decision-making over formal public hearings or letter writing (Force and Williams 1989), that public meetings may become venting sessions motivated out of generalized resentment and mistrust of public officials (Twight 1977), and that they do little to dispel stereotyped perceptions of disagreement with agency positions (Twight and Paterson 1979).

The relatively formal nature of communication during public involvement processes also tends to affect the quality of the information that the agency receives. In order to comment at a hearing-type meeting, a participant must speak for the record, which is often equivalent to making a short speech into a microphone before a relatively large assembly. Given the proportion of people in whom such public speaking produces anxiety, it is likely that the quality and quantity of the comments is reduced by such a formal protocol, and that only the most motivated people will overcome their fears and address the group. As a result, the comments tend to be more extreme than they might be in a setting where dialogue is more natural.

Formal public participation methods used by government agencies seem to exhibit a "3 'I' Model": inform, invite, and ignore. A public lands management agency can inform the public about a proposed action, invite the public to a meeting to provide comments on that action, and ignore what members of the public say. While this may appear to be a somewhat cynical view, it is clear that there has been more measured dissatisfaction with public participation than satisfaction (Hendee et al.1974, Blahna

and Yonts-Shepard 1989, Dixon 1993, Twight 1977; Twight and Paterson 1979, Force and Williams 1989). It does not seem that on balance, the public participation activities of land management agencies are contributing to any successes they may be enjoying; it is in fact more likely that they are part of the agencies' current difficulties.

5.2 Scientific and technical expertise

A second approach to conflict that public land management agencies have employed relies on the insights of science and technology. This approach holds that if the task of analyzing a controversial situation is assigned to technical specialists, their scientific knowledge and solutions will be convincing enough to mitigate or even eliminate any conflict.

Utilizing the most appropriate science and technology may seem like an obvious way to deal with policy conflicts, particularly when complex situations are involved. One must recognize, however, that "most appropriate" is a value statement, and for many technically trained specialists, it is synonymous with "most advanced", or "state-of-the-art". There are cases where advanced technical solutions to policy problems are in fact not the most appropriate, particularly when the costs of such solutions are too high or they result in policy recommendations that are not culturally or politically viable. The international development literature is replete with examples of highly technology-oriented proposals for development projects that illustrate that most-advanced technology and most appropriate technology are not synonymous. Furthermore, this approach may be destined to fail because it seeks a technical solution to a policy conflict situation that encompasses differing values and worldviews.

5.3 The fundamental paradox

The shortcomings of addressing public land conflicts through formal public participation or scientific expertise speak to a fundamental paradox in developing sound public land management policy. Complex natural resource policy situations need to rely on the best available science and technology, while also drawing upon an involved citizenry. The paradox can be summarized as a tension between "the politics of expertise" and "the politics of inclusion".

This juxtaposition between technical competence and open process is a defining characteristic of American policy formation. Citizens demand technically sound decisions, but as situations become more complex fewer people have the scientific technical background needed to either contribute or criticize. On the other hand, these complex situations often touch people's lives in very fundamental ways. The traditions of participatory democracy imply that those people should be at least consulted, if not directly involved. Participatory democracy grants standing to the broadest segments of society, but technical solutions to complex problems grant standing to those groups who are able to spend the time and money needed to become technically proficient, thus creating a much more narrow politics of expertise. This creates a compelling

dynamic between inclusion and expertise, a dynamic that cuts across public policy conflict situations such as nuclear waste disposal, health care, and land management. In this latter context, a participatory democratic approach would include stakeholders whose interests are largely framed in terms of social values, but these values have been notoriously difficult to include in rational/technical decision processes. Finding ways to increase the quality of technical expertise, while simultaneously increasing the inclusiveness of decision processes, is perhaps the fundamental challenge of effective policy formation.

The United States' National Forest Management Act of 1976 (NFMA) illustrates the fundamental dilemma between the participatory model and the rational/technical model because it speaks to both visions: it requires a Secretary's-level advisory board and other forms of public participation, but also requires comprehensive planning. Moreover, the Committee of Scientists established by the NFMA to advise the development of regulations to implement the NFMA struggled with finding a balance between citizen participation and technical adequacy: one of their goals was to have the forest plans accessible at the "Joe's Bar and Grill level" (Daniels and Merrill 1992, 115 quoting Box), but at the same time the core of the planning process became linear programming, which is sufficiently complex as to exclude only the most persistent reviewers.

Decision-making speed is an additional issue that is often secondary to our desire for public voice and technical competence. In some cases, such as forest health and fire recovery, it has special importance. If salvage of wood fiber is a consideration, either as a result of fire or disease/insects, the wood is useful for the highest value products for only 1-2 years after death. Time spent either analyzing or discussing the situation from every possible perspective therefore has some real costs in terms of the economic values that might be captured from the salvage. By the same token, if public agencies do shoddy environmental documentation or analysis because their process contains short-cuts motivated by salvage merchantability, they create a potential appeals/litigation risk that would no doubt add more time still. It is therefore imperative that the conflict management/public involvement strategy of the agencies be adequate to the task of crafting legitimate public policy, but not to create delay or wheel-spinning.

This paradox has also captured the attention of scholars from several disciplines. Reich (1985), a political economist, argues that the limited success of post-World War Two public administration in the United States stems from competing paradigms. Neither the paradigm of administration as technocratic analysis or the paradigm of administration as interest intermediation pay sufficient attention to social learning activities that might benefit both. Yankelovich (1990), a pollster, sees improved political process coming from a citizenry working through of complexity of modern policy situations. Lee (1993), an environmental scientist, contends that sustainable development will come from the integration of adaptive management - to deal with the scientific uncertainty and complexity - and political negotiation, which meets the need for an involved citizenry. Pierce et al. (1992), political scientists, refer to this paradox as the "post-industrial quandary", and see interest groups as playing important roles as information brokers and political actors.

Perhaps it is more important to focus on these authors' diverse academic traditions than on the specific ways that they address the paradox of technical competence and inclusive process. Finding an aspect of policy formation that has attracted attention from so many different fields implies that it is probably not a figment of one's idle musings, but neither is it likely to be easily resolved. Progress in the ways we manage natural resource conflicts, and indeed progress on many wide-ranging and complex policy questions may well depend on progress on this paradox. We cannot view wild swings from purely technocratic to purely inclusive processes as progress. Our ability to develop processes that can truly identify and further the public interest hinges on our ability to enhance both.

5.4 The paradox and conflict management

Some natural resource decision-making situations require little more than applying the best technical solution to a problem. But when significant natural resource policy decision situations occur, conflict is likely to arise. Conflicts surrounding decision situations reflect the complexity of those situations: multiple parties, cultural differences, various worldviews, jurisdictional constraints, and so on. Competent decision-making comes from an integration of social assessment and public participation activities (Krannich et. al. 1994). As part of this assessment, the conflict situation should be analyzed thoroughly and alternate management strategies identified and evaluated. Based on this appraisal, the most desirable and feasible conflict management strategy should be implemented. In many cases that strategy will not be simply technical, for such a strategy may not include citizen involvement, local knowledge, and collaboration among the stakeholders. The strategy will also probably not rely solely on the ideas of citizens, for doing so would ignore the jurisdictional responsibilities of management agencies and the knowledge science provides.

Consequently, managing for progress, good policy decisions, and overcoming the paradox calls for methods through which parties can collaborate, and venues in which scientific knowledge can be learned and discussed alongside local or indigenous knowledge. Methods such as collaborate learning (Daniels and Walker 1996; Daniels et al. 1996; Walker and Daniels 1995; Walker and Daniels 1994), search conferences (Deimer and Alvarez 1995), transactive planning (Friedmann 1973), intermediation (Sirmon 1993), and resolution facilitation (Delli Priscoli 1988, 1989) are a few innovations that attempt to manage natural resource conflicts by respecting both the politics of expertise and the politics of inclusion.

6. CONCLUSION

Conflict theory has historically emphasized human behavior and the choices parties make under particular conditions. Many different behaviors are possible, both spontaneous and strategic. Conflict scholarship, though, has in recent years featured interaction and situation as well. The focus on interaction has drawn attention to

communication factors, and the meanings parties create as interpretations of conflict behaviors. Closer examination of the situation has revealed the three significant dimensions - substantive, procedural, and relationship - that need to be assessed to determine what strategies are available to manage that conflict situation. The best strategy - a set of planned behaviors - is implemented through communication interaction in order to deal with the conflict constructively.

Natural resource public policy managers should view conflict management as a core responsibility. Conflict management/public participation is a core link of trust and communication between resource managers and the public. Natural resource professionals should not be content with a strategy to convince the public that we are right, and they should just let us decide. Such a strategy elevates the "3 'I' model" and diminishes the importance of assessing the conflict situation and the value of citizen participation. Natural resource leaders need to be competent conflict managers, capable of assessing conflict situations, developing alternate strategies, and implementing the best action plans for constructive conflict management. In doing so, they will demonstrate a responsiveness in any given policy situation to the need for both the best science available and an involved citizenry.

Natural resource policy situations are controversial and complex. Consequently, conflict in these situations appears inevitable. In these situations, engaging the conflict directly is potentially beneficial, if good assessment takes place and appropriate strategies are used. Writing about organizational conflict, psychology professor Dean Tjosvold (1991) notes that well-managed conflicts can lead to better decisions, improve social cohesion, stimulate innovation, and increase morale. The natural resource policy arena offers a similar opportunity. Perhaps what matters most are conflict situation assessments and management strategies that make progress on the paradox of public deliberation: implementing strategies that can generate technically sound decisions, while simultaneously allowing stakeholders rich and meaningful voice in the process. The demands of natural resource management, combined with the range of interests in the mixed public/private lands, appear to require nothing less.

REFERENCES

Bacharach, S.B. and Lawler, E.J. 1981. Bargaining: Power, tactics, and outcomes. San Francisco, CA: Jossey-Bass.

Bazerman, M.H. 1990. Judgment in managerial decision making, 2nd ed. New York: John Wiley.

Bazerman, M.H. and Neale, M.A. 1992. Negotiating rationally. New York: The Free Press.

Blahna, D. and Yonts-Shepard, S. 1989. Public involvement in resource planning: Toward bridging the gap between policy and implementation. *Society and Natural Resources* 2: 209-227.

Brandenburg, A.M. and Carroll, M.S. 1995. Your place or mine?: The effect of place creation on environmental values and landscape meanings. *Society and Natural Resources* 8: 381-398.

Bush, R.B. and Folger, J.P. 1994. The promise of mediation: Responding to conflict through empowerment and recognition. San Francisco: Jossey-Bass.

Carpenter, S. and Kennedy, W.J.D. 1988. Managing public disputes: A practical guide to handling conflict and reaching agreements. San Francisco: Jossey-Bass.

Collier, M.J. and Thomas, M. 1988. Identity in intercultural communication: An interpretive perspective. In: Kim, Y. and Gudykunst, W. (eds.). Theories of intercultural communication. Pp. 99-120. Newbury Park, CA: Sage.

Conrad, C. 1990. Strategic organizational communication: An integrated perspective, 2nd ed. Fort Worth, TX: Holt, Rinehart and Winston.

Coser, L. 1956. The functions of social conflict. New York: The Free Press.

Dale, A.P. and Lane, M.P. 1994. Strategic perspectives analysis: A procedure for participatory and political social impact assessment. *Society and Natural Resources* 7: 253-267.

Daniels, S.E. and Merrill, K. 1992. The committee of scientists: A forgotten link in national forest planning history. *Forest and Conservation History* 36: 108-116.

Daniels, S.E. and Walker, G.B. 1996. Collaborative learning: Improving public deliberation in ecosystem-based management. *Environmental Impact Assessment Review* 16: 71-102.

Daniels, S.E. and Walker, G.B. 1995. Searching for effective natural resources policy: The special challenges of ecosystem management. *Natural Resources and Environmental Issues* 5: 29-35.

Daniels, S.E., Walker, G.B., Carroll, M.S. and Blatner, K.A. 1996. Using collaborative learning in fire recovery planning. *Journal of Forestry* 94(8): 4-9.

Daniels, S.E., Walker, G.B., Boeder, J.R. and Means, J.E. 1993. Managing ecosystems and social conflict. In: Everett, R. and Tripp, J. (eds.). Ecosystem management: Principles and applications, Vol. II. Pp. 347-359. Portland, OR: USDA Forest Service, Pacific Northwest Station.

Daniels, S. and Walker, G. 1993. Managing natural resource disputes: The Collaborative Learning approach. Paper presented at the National Conference on Peacemaking and Conflict Resolution, Portland Oregon, 1 June 1993.

Delli Priscoli, J. 1988. Alternative conflict management techniques in land-use decisions: Sanibel Island case study. In: Dysart III, B. C. and Clawson, M. (eds.). Managing public lands in the public interest. New York: Praeger.

Delli Priscoli, J. 1989. Public involvement, conflict management: means to EQ and social objectives. *Journal of Water Resource Planning and Management* 115: 31-42.

Deutsch, M. 1973. The resolution of conflict. New Haven, CT: Yale University Press.

Diemer, J.A. and Alvarez, R.C. 1995. Sustainable community, sustainable forestry: A participatory model. *Journal of Forestry* 93(11): 10-14.

Dixon, K.M. 1993. The relationship of benefits and fairness to political confidence in the U.S. Forest Service. M.S. Thesis, School of Renewable Natural Resources, University Arizona, Tucson.

Druckman, D. 1977. Negotiator roles. In Hermann, M. (ed.). The social psychology of political leaders. Beverly Hills, CA: Sage.

Fisher, R. and Ury, R. 1991. Getting to yes. 2nd ed. New York: Penguin.

Folger, J.P., Poole, M.S. and Stutman, R.K. 1997. Working through conflict, 3rd ed. New York: Longman.

Force, J.E. and Williams, K.L. 1989. A profile of National Forest planning participants. *Journal of Forestry* 87: 33-38.

Friedmann, J. 1973. Retracking America: A theory of transactive planning. Garden City, NY: Anchor Books.

Gray, B. 1989. Collaborating. San Francisco: Jossey-Bass.

Hendee, J.C., Lucas, R.C., Tracey, R.H., Clark, R.N. and Stankey, G.H. 1974. Public involvement and the Forest Service: Experience, effectiveness, and suggested direction. USDA Forest Service, Land and Resource Management Planning. Washington, D.C.

Hocker, J.L. and Wilmot W.W. 1995. Interpersonal conflict, 4th. ed. Dubuque, IA: Brown and Benchmark.

Keltner, J.W. 1994. The management of struggle. Cresskill, NJ: Hampton Press.

Kemmis, D. 1990. Community and the politics of place. Norman, OK: University of Oklahoma Press.

Krannich, R.S., Carroll, M.S., Daniels, S.E., and Walker, G.B. 1994. Incorporating social assessment and public involvement processes into ecosystem-based resource management: Applications to the East Side Ecosystem Management Project. Boise, ID: East Side Ecosystem Management Project, USDA Forest Service.

Lee, K. 1993. Compass and gyroscope: Integrating science and politics for the environment. Washington, D.C.: Island Press.

Lewicki, R.L., Litterer, J.A., Minton, J.W. and Saunders, D,M. 1994. Negotiation, 2nd ed. Burr Ridge, IL: Irwin.

Lyden, F.J., Twight, B.W. and Tuchmann, T.E. 1990. Citizen participation in long-range planning. *Natural Resources Journal* 30: 123-138.

McCorkle, S. and Mills, J.L. 1992. Rowboat in a hurricane: Metaphors of interpersonal conflict management. *Communication Reports* 5: 57-66.

Neale, M.A. and Bazerman, M.H. 1985. The effects of framing and negotiator overconfidence on bargainer behavior. *Academy of Management Journal* 28: 34-49.

Pierce, J., Steger, M., Steel, B. and Lovrich, N. 1992. Citizens, political communication, and interest groups: Environmental organizations in Canada and the United States. Westport, CT: Praeger.

Pruitt, D. G. 1983. Achieving integrative agreements. In: Bazerman, M. H. and Lewicki, R. J. (eds.). Negotiating in Organizations. Beverly Hills, CA: Sage.

Pruitt, D. G. and Rubin, J. Z. 1986. Social conflict. New York: Random House.

Putnam, L. L. and Poole, M. S. 1987. Conflict and negotiation. In: Jablin, F. M., Putnam, L. L., Roberts K. H. and Porter, L. W. (eds.). Handbook of organizational communication (pp. 549-599). Newbury Park, CA: Sage.

Reich, R. 1985. Public administration and public deliberation: An interpretive essay. *Yale Law Journal* 94: 1617-1641.

Rubin, J. Z., Pruitt, D. G. and Kim, S. H. 1994. Social conflict, 2nd ed. New York: Random House.

Schelling T. C. 1960. The strategy of conflict. Cambridge, MA, USA: Harvard University Press.

Sirmon, J. 1993. National leadership. In: Berry, J. K. and Gordon, J. C. (eds.). Environmental leadership. Washington D.C.: Island Press.

Susskind L. and Cruikshank, J. 1987. Breaking the impasse: Consensual approaches to resolving public disputes. New York: Basic Books.

Thompson, L. 1990. Negotiation behavior and outcomes: Empirical evidence and theoretical issues. *Psychological Bulletin* 108: 515-532.

Thompson, L. 1991. Information exchange in negotiation. *Journal of Experimental Social Psychology* 27: 161-179.

Ting-Toomey, S. 1985. Toward a theory of conflict and culture. In: Gudykunst, W. B., Stewart, L.P. and Ting-Toomey, S. (eds.). Communication, culture, and organizational processes. Pp. 81-97. Beverly Hills, CA: Sage.

Tjosvold, D. 1990. The goal interdependence approach to communication in conflict: An organizational study. In Rahim, M. A. (ed.). Theory and research in conflict management. Pp. 15-27. New York: Praeger.

Tjosvold, D. 1991. The conflict-poitive organization: Stimulate diversity and create unity. Reading, MA: Addison-Wesley.

Tjosvold, D. and van de Vliert, E. 1994. Applying cooperative and competitive conflict theory to mediation. *Mediation Quarterly* 11: 303-311.

Twight, B.W. 1977. Confidence or more controversy: wither public involvement? *Journal of Forestry* 75: 93-95.

Twight, B.W. and Paterson, J.J. 1979. Conflict and public involvement: measuring consensus. *Journal of Forestry* 77: 771-774.

USDA-Forest Service. 1990. Critique of land management planning, volume 2: National Forest planning: Searching for a common vision. FS-453. Washington, D.C.

Walker,G. 1992. Toward a theory of conflict communication competence. Paper presented at the International Association for Conflict Management conference, Minneapolis, MN, 20 June.

Walker, G.B. 1996. An analytic framework to improve conflict diagnostic skills. Paper presented at the Sixth International Symposium on Society and Resource Management, State College, PA, 23 May.

Walker, G.B. and Daniels, S. E. 1994. Collaborative learning and the management of natural resource disputes. Paper presented at the annual meeting of the Rural Sociological Society, Portland, OR, 12 August.

Walker, G.B. and Daniels, S.E. 1995. Managing conflict in fire recovery planning: Public participation as Collaborative Learning. Paper presented at the annual meeting of the Western States Communication Association, Portland, OR,18 February.

Wall, J. A. 1985. Negotiation: Theory and practice. Glenview, IL: Scott, Foresman.

Wehr. P. 1979. Conflict regulation. Boulder, CO: Westview.

Yankelovich, D. 1991. Coming to public judgment: Making democracy work in a complex world. Syracuse, NY: Syracuse University Press.

COLLABORATIVE LEARNING AND LAND MANAGEMENT CONFLICT[1]

Steven E. Daniels and Gregg B. Walker
Oregon State University
USA

ABSTRACT

Land management inevitably involves challenging choices among alternatives, which can lead to controversy and contention among groups who perceive a stake in the outcome. Managing the conflict dimensions of natural resources must be grounded in a thoughtful assessment of the attributes of the situation.The typical attributes of natural resource conflicts are 1) a high level of biophysical and social complexity and 2) diverse worldviews lead to an appearance of intractability.As a result, their management requires 1) a considerable measure of social learning, a systemic approach, and active engagement of the conflict by land management agencies. Such an approach would be more collaborative than the relatively formal public participation activities (hearings, comment letters, etc.) that have commonly been associated with agency decision processes. Collaborative processes put more emphasis on joint learning and solution generation that do more competitive processes.

Collaborative Learning is a particular technique that was designed as a collaborative approach to land management decision/disclosure processes. It is a hybrid between the fields of soft systems analysis and negotiation/conflict management. It has been applied to various public land management situations in the northwestern region of the United States. An application in the Oregon Dunes National Recreation Area is presented.There is evidence from this and other applications that Collaborative Learning is a useful technique to generate improvements to land management decisions through discussions between agencies and citizens.

Key words: Collaboration, conflict management, dispute resolution, public participation

Birger Solberg and Saija Miina (eds.)
Conflict Management and Public Participation in Land Management
EFI Proceedings No.14, 1997

1. INTRODUCTION

In her opening address to the European Forest Institute's 1996 symposium on conflict and land management, Sirkka Hautojarvi, of Finland's Ministry of the Environment, noted that conflict over natural resources is part of the human condition. Even so, land managers tend to focus on biophysical or financial aspects of their craft, putting perhaps less emphasis on the communicative and political dimensions. She called upon institutions to develop more holistic approaches to natural resource problems; increased use of environmental impact assessments, processes that value collaborative, community-based decision making. Doing so, Hautojarvi believed, would address the need for finding new ways to deal with natural resource conflicts.

In concert with these concerns, this paper outlines an innovative approach to dealing with natural resource decision situations, such as conflicts and disputes: Collaborative Learning (CL). Collaborative Learning represents a form of external intervention into problem situations, such as those encountered in natural resource controversies. CL is, in a sense, a form of multi-party dispute mediation, although as our discussion will hopefully reveal, CL involves much more than traditional mediation[2]. Following the discussion of Collaborative Learning as a mediation/facilitation approach to natural resource situations, the essay presents the Oregon Dunes National Recreation Area planning project as a case study. Our ideas about Collaborative Learning are grounded in an assessment of natural resource conflict and public participation; it is offered here as a foundation for discussing Collaborative Learning.

2. NATURAL RESOURCE CONFLICT AND PUBLIC PARTICIPATION

2.1 Assessing natural resource conflict

Conflicts over the management of natural resources are inevitable; many seem irresolvable. Even the specific disputes that arise within the broader conflict situations often seem difficult to settle. Natural resource management is increasingly shifting away from single-resource emphasis to an ecosystem-based focus. This emergent emphasis on the interrelatedness of physical, biological, and socio-cultural systems also acknowledges the importance of dealing with natural resource conflict constructively in order to manage ecosystems effectively.

Attribute 1: Natural resource conflicts and disputes are complex. They arise within some context which typically defined by a complex array of factors, some of which relate to people and parties, and others that pertain to structure. Party-based sources of complexity include: (1) the number of parties, (2) deeply held values, (3) diverse incentives, (4) cultural differences, (5) varied forms and degrees of symbolism, and (6) perceptions of standing. Structure-based sources of complexity are (1) multiple issues, (2) power imbalances related to alternatives, (3) multiple venues, (4) scientific and technical uncertainty, (5) legal and jurisdictional constraints, and (6) an entrenched conflict industry (Daniels and Walker 1993). Natural resource management, as practiced by land agencies, is a context of great significance, particularly to people in the West. To manage natural resource conflicts well, their complexity must be understood. They are rarely single issue or two-party; disputes typically include many interrelated matters with both tangible and intangible dimensions. A dispute over the removal of timber salvage, for example, may involve issues related to visual impacts, fish and wildlife habitat, forest health, industry needs, occupational identity, and community dependence. Stakeholders may include local and national environmental groups, government agencies, small and large timber interests, local community officials, recreation interests, and so on.

Attribute 2: Natural resource disputes often involve diverse world views, contributing to a perception of intractability. Natural resource conflicts are frequently ongoing, reflecting different values, interests, and fundamental views of the relationship between people and the natural environment (Henning and Mangun 1989). These conflict factors may contribute to views of a conflict as intractable (Kriesberg 1989). Some conflicts exist at the "ontological" level, featuring diametrically opposed value systems relative to the problem situation at hand (Hunter 1989). Parties will not negotiate agreements in conflict with their world views, and may make little progress until parties understand one another's value orientations and regard them as legitimate. Many values-based views of the natural environment, and humans' relationship to it, exist. Ralston (1988) delineates a variety of seminal values, including life-support, economic, recreational, scientific, aesthetic, historic, cultural-symbolic, character-building, diversity-unity, and religious. Many of these values, when fundamental to value systems about natural resources, seem incompatible. Economic values of a specific western range, for example, may seem to deny aesthetic or religious values related to that same land.

Attribute 3: Natural resource conflict approaches should value social learning. Social learning combines top quality technical knowledge and political discourse (Reich 1985). Indeed, considerable attention is focusing upon adaptive management, which regards policies as experiments from which learning occurs, regardless of a policy's success. Adaptive management emphasizes that actions generate knowledge (Lee 1993). So, too, does public policy decision-making. "Both the process and the substance of policy decisions", Reich observes, "generate social learning about public values and set the stage for future public choices" (1988:143). Social learning and decision making may occur within a larger planning context. As Friedmann notes, social learning:

> "begins and ends with action, that is, purposeful activity. It is a complex, time-dependent process that involves, in addition to the action itself (which breaks into the stream of ongoing events to change reality), political strategy and tactics (which tell us how to overcome resistance), theories of reality (which tell us what the world is like), and the values that inspire and direct the action. Together, these four elements constitute a form of social practice . . . practice and learning are construed as correlative processes, so

> that one process necessarily implies the other. In this scheme, decisions appear as a fleeting moment in the course of an ongoing practice. They are embedded in a learning process that flows from the attempt to change reality through practice. (1987:181-182, emphasis added)".

A complex natural resource policy situation is inevitably controversial, for many parties with fundamentally different values perceive a stake in that situation. The complexity and controversy often produce gridlock, but they also render the situation ripe for learning. Problem definition and solution generation comprise meaningful social learning processes and constituencies sort out their own and other parties' values, orientation, and priorities: "Because constituents may cling rigidly to one way of viewing the solution, the work of defining and solving problems must provoke learning. The act of sorting out their values and points of view on a complex issue, of debating the merits of various competing frames for the problem, is itself part of the adjustment process by which constituents achieve solutions" (Heifetz and Sinder 1988:189). Too often, though, governments and their agencies so control public deliberation and negotiation processes as to thwart learning. As Reich explains, "the failure of conventional techniques of policy making to permit civic discovery may suggest that there are no shared values to be discovered in the first place. And this message - that the 'public interest' is no more than an accommodation or aggregation of individual interests - may have a corrosive effect on civic life" (1988:146-147).

A social learning emphasis in effective conflict management, though, requires more than simply "citizen discourse" or "good communication". It depends on communication competence, that is, parties communicating appropriately and effectively. Conflict management efforts also need to be structured to emphasize learning and opportunities to work through different viewpoints, which is doubly important and difficult in intercultural contexts (Lustig and Koester 1993).

Attribute 4: Managing natural resource conflict requires good systemic analysis. To the extent that the goal is to develop management strategies that are both sound science and grounded in the political milieu, they must respect local knowledge just as they respect scientific knowledge; voices from non-scientific communities deserve to be heard along side the scientists. Increasingly at the ecosystem or landscape scales, agencies and community representatives must learn about and analyze conflict and dispute situations systemically and enact appropriate strategies to deal with those disputes constructively. Learning and analysis demand forethought and time, both often in short supply when crises erupt. Crises encourage "knee jerk" reactions, rather than evaluating options systemically and making constructive, planned strategic choices. In crises parties often rely on "trained incapacities", habitual methods of responding, even when aware that these methods may not work (Folger and Poole 1984). Such habitual responses may thwart innovation, systems thinking (Senge 1990), and good decisions. Innovative methods for public participation should encourage systems thinking, competent analysis, and appropriate strategic choice.

Attribute 5: Natural resource agencies and organizations (and their representatives) must address conflicts and disputes. If conflicts are inevitably part of natural resource management, then they are necessarily part of the resource

agencies' on-going processes. In the United States for example, the long-standing commitment of the USDA-Forest Service to multiple use implicitly acknowledges the diversity of interests and ideas about how forest resources should be used. Regardless of the management philosophy and policy the any particular natural resource agency embraces, those divergent views and values will endure. These views and values typically seem to compete with one another, making dispute settlements difficult. Consequently, some organizations and managers may become frustrated, thereby seeing conflict as negative and something to block or avoid. This attitude in turn encourages reactive crisis responses, rather than its constructive management. Natural resource agencies and organizations, rather than relying on a "conflict crisis" approach, should emphasize a "conflict collaboration" approach. In so doing, agencies embody what organizational psychologist Dean Tjosvold calls the "conflict-positive organization". In such an organization, people value diversity in people and opinions, seek mutually beneficial outcomes to problems, are empowered to deal constructively with conflict, and take stock of and reflect on how they and the organization handle conflict (Tjosvold 1991:9). To become "conflict-positive", natural resource agencies and organizations, through their structure, culture, and the attitudes of individuals, should support constructive conflict and dispute management approaches (Tjosvold 1991:11).

Attribute 6: Conventional mediation approaches are insufficient for facilitating the resolution of natural resource disputes. Standard mediation theory and practice rely principally on a two-party conflict model, such as that which occurs in labor-management and divorce dispute settings. Some mediation techniques may not be adequate for dealing with the multi-faceted complexity of natural resource controversies. For example, in two-party disputes mediators may employ caucuses to advance the process toward settlement. A natural resource conflict may involve ten, twenty, or more stakeholders, making caucuses impractical. Competent natural resource mediators need to find other methods to achieve the benefits a caucus might otherwise gain. Further, some argue that mediation is inappropriate in natural resource disputes no matter what its form, because natural resources (e.g., old growth forests) cannot be compromised or negotiated away (Amy 1987). As Amory Lovins has observed, "our society has mechanisms only for resolving conflicts of interests, not conflicting views of reality" (1977:12).

2.2 Designing a high quality natural resource conflict management strategy

If the quality of natural resource management depends at least in part on the quality of conflict management, and the key conflict management dimensions are those listed above, what type of public participation strategy would seem to be called for?

First, the public participation activities would be viewed as conflict management, regardless of whether the conflict is latent or enacted. Often the term "conflict management" is used to describe a set of skills invoked after a situation has become openly contentious. As useful as that might be, there is no compelling reason to wait until suspicions are raised and tempers flare to apply those skills. Public participation

programs that are grounded in conflict management theories can potentially prevent potentially controversial situations from escalating into active disputes. It they can accomplish that, even in part, they will have enhanced our collective ability to manage natural resources in innovative and timely ways. If they cannot, more costly cycles of controversy, litigation, and legislation may become more common.

Second, it must move well beyond a formal legalistic approach so that it would have the flexibility to create a rich dialogue among varied participants. Public participation is often structured as an internal/external, us versus them, zero-sum conflict relationship. In that context, strategies of both the agency and the publics more likely become competitive rather than collaborative, centered around the distributive allocation of a fairly fixed set of resources. It is very difficult in such a situation to develop the incentives for innovative problem solving that can incorporate and integrate the parties' interests (Wondolleck 1988). Thus any emergent creativity is in spite of the structure of the public participation, not because of it.

In the United States, for example, public participation related to natural resources typically occurs in a fairly rigid format. The agencies' public participation activities are largely the result of external mandates, and there is a considerable body of legislation, regulation, and case law that collectively defines its adequacy (U.S. Congress, Office of Technology Assessment 1992). Usually those requirements are crafted in terms of specific periods for public comment, each with a minimum number of days, and a minimum number of local papers in which legal notices must be published, etc. Quite understandably, a common agency response is to comply with those minima, and not undertake additional or different kinds of public participation, which might risk additional delay or an unforeseen procedural error. Going beyond the letter of the law is not precluded, but there seems to be little incentive for doing so. Public involvement practices are therefore not made as situation-specific as much of the literature suggests would be helpful (Blahna and Yonts-Shepard 1989)

Third, the public participation activities would not be viewed as trying to educate the public as to why the agency's technically "right" answer should be adopted. A phrase common among natural resource professionals is that "if the public only knew what we know, they would agree with us; how can they be taught that what we are doing is right"? Such a statement certainly has a learning emphasis, but is based on a presumption that the worldview of the agency professional is both fully informed and somehow "right"; therefore the only participants needing to learn are the public. It also implies a narrow, unidirectional view of communication. The learning philosophy in this paper rejects that perspective, particularly that agencies have nothing to learn.

3. COLLABORATIVE LEARNING: A CONFLICT MANAGEMENT AND PUBLIC PARTICIPATION SYSTEM

Our conception of Collaborative Learning (CL) is evolving, influenced by writers in the fields of conflict management, negotiation, mediation, environmental dispute resolution, and communication (see Table 1). From dispute resolution fields, particularly mediation, Collaborative Learning incorporates methods designed to

promote collaborative, integrative negotiation. Mediation encourages parties to identify and assess innovative approaches for settling their differences, including logrolling, bridging, non-specific compensation, etc. Mediators often use transformative strategies that encourage parties to engage in role reversal, mirroring, and future orientation. Mediation seems well suited for generating settlements when significant values differences exist. "Value disputes". Christopher Moore observes, "are extremely difficult to resolve where there is no consensus on appropriate behavior or ultimate goals" (1988: 256). Yet mediators, via identification and reframing methods, can address value conflict. Specific techniques include (1) transforming value disputes into interest disputes, (2) identifying superordinate goals (both short and long term), and (3) avoidance (Moore 1986: 178).

Table 1. Collaborative Learning as a hybrid.

ELEMENTS	SSM	ADR
Promotes Learning	High	Low
Emphasizes Systems Thinking	High	Low
Deals with Value Differences	Low	High
Handles Strategic Behaviors	Low	High

Still, the fundamental basis for our Collaborative Learning design resides in "soft systems methodology" (SSM). Soft systems is an application of theoretical work in systems and experiential learning (Wilson and Morren 1990). Soft systems brings to natural resource disputes an emphasis on learning, an area alternative dispute resolution methods, including mediation, typically disregard or consider peripheral to the settlement task. As Flood and Jackson (1991) observe, SSM "is doubly systemic since it promotes a systemic learning process, orchestrating different appreciations of the situation, which is never- ending, and it also introduces systems models as part of that learning process. The systemic learning process aims to create a temporarily shared culture in which conflicts can be accommodated so that action can be taken" (pp. 177-178).

Soft systems methodology emphasizes, rather than conflict resolution, "situation improvement". Instead of offer-counteroffer bargaining, SSM features learning. As von Bulow (1989) recently explained:

> SSM is a methodology that aims to bring about improvement in areas of social concern by activating in the people involved in the situation a learning cycle which is ideally never-ending. The learning takes place through the iterative process of using systems concepts to reflect upon and debate perceptions of the real world, and again reflecting on the happenings using systems concepts. The reflection and debate is structured by a number of systemic models. These are conceived as holistic ideal types of certain aspects of the problem situation rather than as accounts of it. It is taken as given that no objective and complete account of a problem situation can be provided. (cited in Checkland and Scholes 1990:28).

The object of SSM is the "human activity system" (Checkland 1981). Such as system "can be manifested only as perceptions by people, along with the meanings they are free to attribute to those perceptions" (Wilson and Morren 1990:106).

SSM presumes that inquiry and problem-solving are both "logic-driven" and culture-driven" (Checkland and Scholes 1990). These "streams of enquiry" interact with and inform one another. Logic-driven analysis features models of relevant human activity systems and comparisons of the those models with the perceived "realities" of the present problem situation. According to Checkland and Scholes, "these comparisons serve to structure debate about change" (1990:29). The culture-driven dimension includes of three analytical streams: analysis of the intervention itself, the relevant social system factors, and the relevant political system factors. Intervention analysis assumes that the very act of intervention changes the problem situation. Social system factors may include norms, roles, and values. Political system factors generally relate to concerns about power (Checkland and Scholes 1990).

SSM, as presented by Wilson and Morren, consists of seven stages. They explain that "stages 1 and 2 are aimed at making sense of a situation" (perception and description); "stage 3 begins the application of systems thinking to gain insight into what improved systems might be" (define transformations); stage 4 develops "human activity system (HAS) models"; stage 5 takes "our new conceptualizations back to reality to compare them with the original situation" (as described in stage 2); stage 6 directs appropriate people in the problem situation "to consider the desirability and feasibility of the proposals for change that emerged from the earlier states of inquiry"; and stage 7 "is the actual implementation of the developed and agreed-upon changes that are aimed at solving problems or improving the situation" (Wilson and Morren 1990:106-108).

Collaborative Learning represents an adaptation of this seven stage model. The key notions from soft systems that define Collaborative Learning seem to be 1) re-defining the task away from solving a problem to one of improving a situation, 2) viewing the situation as a set of interrelated systems, 3) defining improvement as desirable and feasible change, and 4) recognizing that considerable learning - about science, issues, and value differences - will have before implementable improvements are possible. Taken in aggregate, these aspects of Collaborative Learning seem to re-frame the negotiation task in some very useful ways. The CL process features iterative phases designed to create a learning team environment in which individuals can experience systems thinking (Senge 1990). Our model of Collaborative Learning is illustrated in Figure 1.

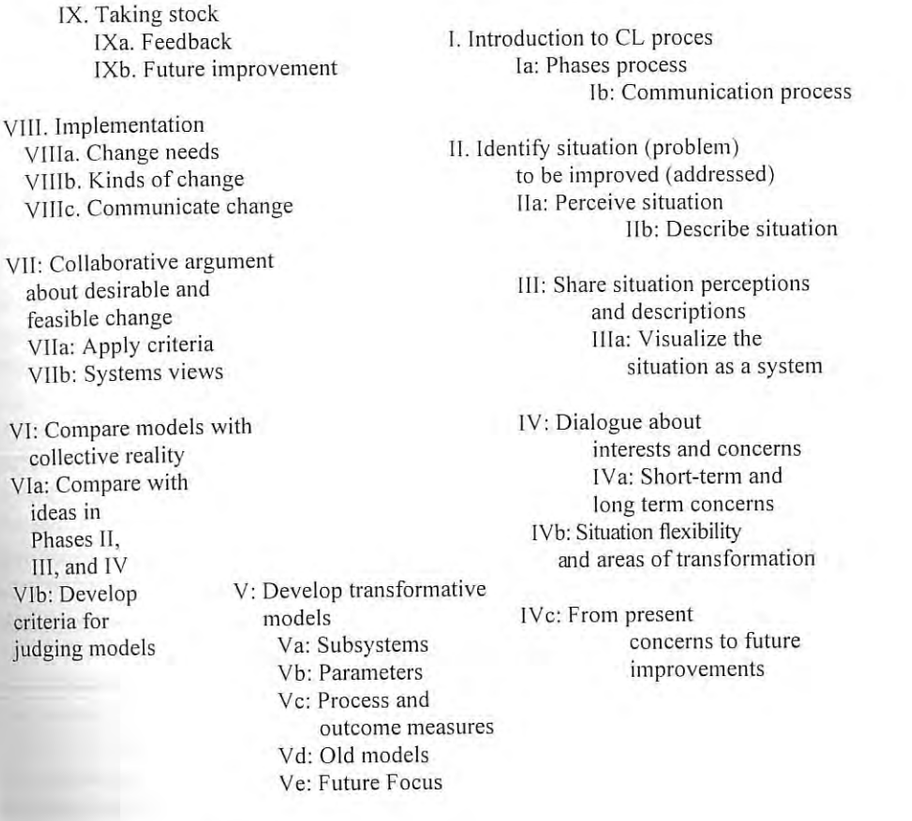

Figure 1. The Collaborative Learning model.

Like SSM, our Collaborative Learning approach features a number of phases. The first phase addresses the CL process itself. What CL is and is not receives attention. Parties in the process learn that CL promotes structured dialogue and situation improvement, but is not designed to generate friendships per se, reach consensus, or "resolve conflict". Collaboration is akin to principled negotiation (Fisher and Ury 1991); it involves assertiveness and cooperation (Blake and Mouton 1978); and firmness and flexibility (Pruitt and Rubin 1986). CL's steps or phases are presented, guidelines or "ground rules" for interaction and work are discussed, and the need for commitment to the process is addressed. By focusing on the CL process, participants can offer feedback and suggest options or modifications that meet their needs. This activity may motivate people to "sign on" to the CL process before it directs parties to focus on the problem situation.

As in SSM, phases two and three are concerned with views of the situation at hand. Checkland emphasizes the importance of focusing on "real-world activities . . . encounters with the concrete experience of people in their contexts" (1981:163). Parties in the process engage in reflective thinking, observation, and description. They share their interests, needs, and concerns. Peoples' ideas may be represented as "themes of concern". In SSM, Wilson and Morren note that concerns may pertain to basic well-being or survival, specific projects, long-range planning, due-process, or generic matters (1990:124-125). In our Collaborative Learning framework, concerns may be represented as tangible and intangible; dealing with substantive, relational, procedural, or identity matters. CL participants are encouraged to see the situation in different ways; to organize their own and others' views of the situation. This may be accomplished through visually organizing interests and concerns, via a "situation map" or "mind map" (Wilson and Morren 1990). Whatever techniques are used, phases two and three "seek to display the situation in all its detail and complexity so as to reveal a range of possible and relevant choices regarding the identification of themes of concern and changes desired in the structures and processes of a current situation" (Wilson and Morren 1990:117).

Phase four directs CL participants to engage in dialogue about the various interests and concerns identified in phases two and three. In this phase CL participants interact as members of a "learning teams" (Senge 1990). They share ideas and exchange views as they organize their concerns and interests and begin to explore areas of possible transformation. They interact, not as advocates, but as "inquirers" who value a diversity of ideas and perspectives (Tjosvold 1991). The participants address the possibility of transforming interests and concerns into areas of potential improvement. Their concerns about the present become part of their visions of the future.

This process continues in phase five, as CL parties begin to develop models for transforming situation concerns and realizing improvement. In SSM, Wilson and Morren (1990) refer to models as constructions of "human activity systems" that improve the situation being reviewed. Through generating models, participants become aware of the "mental models" (Senge 1990) they have employed to view the situation. This phase encourages "systems thinking" as CL participants construct "models" or abstract conceptualizations of how they think improvements can be envisioned. Senge observes that systems thinking is a discipline for seeing wholes. It is a framework for seeing interrelationships rather than things, for seeing patterns of change rather than static "snapshots" . . . for seeing the "structures" that underlie complex situations, for discerning high from low leverage change . . . [It is] concerned with a shift of mind from seeing parts to seeing wholes, from seeing people as helpless reactors to seeing them as active participants in shaping their reality, from reacting to the present to creating the future. (1990:68-69).

From model construction in phase five CL participants move to model evaluation in phase six. The models CL parties have developed are discussed in light of the situation "reality" that emerged in phases two, three, and four. The models are examined as systems according to the shared interests, themes of concern, and transformative statements that emerged from phases two, three, and four; the ideas that collectively define the reality of the situation that needs to be improved. From this "reality check", CL participants generate in and from the models specific actions or

activities that could be implemented to improve the problem situation. SSM refers to model evaluation activity as the "comparison" stage, since models are compared to the views and themes articulated earlier in earlier stages.

Following the model evaluation or comparison phase, CL parties argue constructively about the models and their correspondent activities. Although argument occurs in earlier phases, in this seventh phase CL participants argue about desirable and feasible changes. The argumentation process looks forward, taking the recommended changes of the models and debating if they meet interests and concerns, are workable, and are feasible (Wilson and Morren 1990:237).

The argumentation is collaborative, involving both advocacy and inquiry. CL participants argue as advocates for positions and views, but do so with a commitment for group members to learn from one another and generate, collectively, the best decision (Tjosvold 1991). Consequently, the participants also argue as inquirers, seeking the best knowledge possible from the group members. CL parties argue integratively as they seek mutual gain changes (Walker and Cue 1987). They interact as equals, displaying respect for one another and the diversity of ideas. They are willing to risk the testing of their own views, and are open to changing those views if the argumentation so warrants (Walker 1991). Although competent communication behavior is important throughout the collaborative learning process, it is especially critical in the argumentation phase. Parties have generated models and activities, and collaborative argument about those changes is a prerequisite for their enactment and substantive improvement of the problem situation.

Argument about desirable and feasible changes leads to phase eight; implementation. The collaborative learning process, as we envision it, draws directly upon SSM for its design of this phase. The primary tasks of implementation are (1) to design an implementation plan, (2) to carry out the specific and highly varied actions of that plan, (3) to communicate the specifics to all affected parties, including, but not limited to, actors who have not previously been directly involved in the process, (4) to monitor performance and the environment and evaluate result, and (5) to modify aspects of the plan if information accrues requiring it (Wilson and Morren 1990:281-282).

The implementation plan is not some "expert-designed system" (Wilson and Morren 1990:281). Rather, the plan emerges from the discussions and arguments of the people engaged in the CL process. From their work in the seven prior phases, participants have generated through collaborative interaction and decision making a set of changes, perhaps arranged as short term and long term actions. Now the participants construct a plan to enact, communicate about, and monitor those changes. Parties need to agree on what must be a part of the implementation plan and then address those elements. Wilson and Morren, for example, propose that an implementation plan specify benchmark activities, performance measures, responsible actors, timetables, needed resources, a budget, leadership and decision authority requirements, and communication actions (1990:283).

Collaborative Learning is conceivably an on-going process; participants can address problem situations and their improvements on a continuing basis. Still, consideration of a specific problem situation culminates in phase nine: taking stock. In this phase, CL actors devote attention to evaluating the CL process, including their interaction with

one another. Tjosvold notes that within the conflict-positive organization, "taking stock" involves assessment of the decision making, conflict management process. His description of "taking stock" is relevant to our view of this phase.

People reflect on their work and relationships to identify their progress and weaknesses. They get feedback on their progress and success and how they are working together and managing their conflicts. They talk directly about their communication and relationships so that they can strengthen their team and its members (1991:51).

Within the CL framework parties offer feedback on both process dynamics and structure. Such "taking stock" should occur throughout the CL process, but should systematically take place following the implementation. As part of this phase, CL participants can focus on related areas of future improvements, revisions in the CL model, and new applications of Collaboration Learning.

3.1 Collaborative Learning and communication competence

Our CL model presents the structure of a collaborative process appropriate for complex, multi-party natural resource decision-making and conflict management. The effectiveness of CL, though, relies on more than simply on process structure and technique. Its success depends as well on the quality of the discourse that occurs. Consequently, our CL model includes communication competence. Collaborative learning seeks to develop productive dialogue through encouraging competent communication and negotiation. Communication competence is not a phase, but ideally permeates the entire CL experience. Still, such competence is fostered through the development and implementation of discourse and interaction guidelines (e.g., "ground rules" that value diversity), facilitation, and taking stock.

Competent communication has been defined as communication activity that is perceived as effective in achieving certain objectives while being appropriate to the context in which the activity occurs (Spitzberg 1988:68). The components of communication competence include context; impressions of appropriateness and effectiveness; adaptability based on knowledge and motivation; and actions — the performance of communication behaviors considered as appropriate and effective (Lustig and Koester 1993). Collaborative Learning encourages competent communication and quality discourse by emphasizing conflict and negotiation competence (Walker 1992), and a variety of interrelated communication "skill" areas; elements of a collaborative communication competence "system". These include: (1) listening skills, (2) questioning and clarification skills, (3) feedback skills, (4) modeling skills, (5) social cognition skills, (6) dialogue skills, and (7) collaborative argument skills (Daniels and Walker 1993a).

In a Collaborative Learning intervention, facilitators encourage and model communication competent behavior. As noted earlier in the discussion of phase seven, collaborative argument can be particularly valuable. Constructive argument is critical to CL's success. Parties must transcend traditional negative views of argument (usually related to arguers rather than argument per se). CL participants see the promise of healthy argument, and work to debate issues collaboratively. This commitment

includes valuing disagreement, a desire to learn, willingness to risk, open-mindedness, mutual respect, and acceptance of an ethical responsibility of fairness. Arguers agree to disagree, as both advocates and inquirers. They rely on fundamental argument skills, such as questioning; reason-giving and explanation; individual and joint case building and modification; refutation and constructive criticism; explicit values discussion; and appraisal (Walker 1991).

3.2 Collaborative Learning facilitation

Both the structure and interaction process of Collaborative Learning can be developed and sustained by individuals themselves, working in groups similar to Senge's (1990) notion of learning teams. But as the discussion to this point implies, the Collaborative Learning process requires skill, commitment, and perseverance. Stakeholders in a natural resource problem situation may not be able to progress beyond their disparate views without the help of a outside party. In complex natural resource controversies facilitation seems necessary to promote collaborative learning. CL facilitation involves a mix of mediation and process consultation strategies and tactics (Lewicki and Litterer 1985, Hocker and Wilmot 1991). Application of soft systems inquiry, the foundation for much of the collaborative learning approach, typically involves the use of skilled facilitators (Wilson and Morren 1990:118).

Collaborative Learning encourages people to think systemically and to learn actively with one another about a particular situation. Since the initial stages of CL emphasize common understanding, appropriate activities for this phase might include information exchange, imagining best and worst possible futures, and visual representations of the situation, perhaps through the use of "situation" maps (Wilson and Morren 1990). In middle stages, CL participants focus on concerns and interests regarding the specific situation, and determine how those concerns relate to other concerns. Then they identify possible changes, or "situation improvements". In the latter stages, the participants debate these improvements, addressing whether or not they represent desirable and feasible changes in the present situation.

Throughout CL processes, participants talk with and learn from one another in groups of various sizes. A wide range of activities can facilitate such discussions; for example, a CL process may use a "2-4-8" approach to discussing situation improvements. After each CL participant has developed an improvement, she or he discusses that improvement with one other person. Those two join two others and talk about each person's improvements. Those four join four others and the process continues. Within these discussions, active listening, questioning, and argument are respected. People clarify and refine their improvements through dialogue. Consistent with the theme of "working through", Collaborative Learning emphasizes "talking with" rather than "talking at".

In sum, Collaborative Learning:

- Stresses *improvement* rather than solution.
- Emphasizes *situation* rather than problem or conflict.
- Focuses on *concerns and interests* rather than positions.
- Targets *progress* rather success.

- Seeks *desirable and feasible change* rather than desired future condition.
- Encourages *systems thinking* rather than linear thinking.
- Recognizes that *considerable learning* - about science, issues, and value differences - will have to occur before implementable improvements are possible.
- Emphasizes *communication and negotiation interaction* as the means through which learning and progress occur.

These features have the combined potential to reconfigure traditional involvement into a more active learning process that provides the public with a meaningful voice in decision processes, and agencies with more useful public comment. The next section addresses the ability to capture that potential through practice.

4. COLLABORATIVE LEARNING IN PRACTICE: THE OREGON DUNES NATIONAL RECREATION AREA[3]

Collaborative Learning workshops were conducted in 1993 as part of the Oregon Dunes National Recreation Area (ODNRA) planning process. The ODNRA, a unit of the Siuslaw National Forest, needed to update its legally mandated management plan. In addition to employing traditional public involvement activities pursuant to the National Environmental Policy Act of 1969 (NEPA), ODNRA and Siuslaw National Forest leadership wanted to include a more innovative approach. It provides an illustrative case of a collaborative learning approach to public participation.

4.1 Background

The Oregon Dunes National Recreation Area consists of a 60 by 2.5 km, 17,000 ha strip of land on the central Oregon Coast. The dunes system within the ODNRA has been part of the Siuslaw National Forest since 1908, when the Forest was established. By an act of Congress, the dunes became a National Recreation Area in 1972, to be administered by the USDA-Forest Service for the purposes of "public outdoor recreation use and enjoyment . . . and the conservation of scenic, scientific, historic and other values contributing to the public enjoyment of such land and waters . . ." (Siuslaw National Forest 1993: I-1).

The ODNRA is a multiple-resource, multiple-use area. Major issue areas addressed in the planning process were off-road vehicle (ORV) management (e.g., access, noise, safety), non-motorized recreation activities (e.g., hiking, camping, interpretation), vegetation (particularly non-native European beachgrass), threatened and endangered species (e.g., the Western Snowy Plover), wetlands, wild and scenic river designation, user population management, and local community impacts, particularly economic impacts. The presence of off-road vehicles in the ODNRA was the most contentious of these issues. Prior to the planning process, approximately 48% of the ODNRA was open to ORVs (Siuslaw National Forest 1993). The ORV community wanted more of

the area open to motorized recreation. The dominant environmental organization in Oregon wanted ORVs excluded from the ODNRA.

The first ODNRA management plan was prepared during the late 1970s and adopted in 1979. In 1990 the Siuslaw National Forest leadership decided that the management plan needed revision. The National Forest Management Act (NFMA) of 1976 and the National Environmental Policy Act (NEPA) of 1969 require preparation of an Environmental Impact Statement (EIS) when a management plan with potentially significant impacts is revised. Public involvement is a significant part of EIS development and the planning process, as directed by NFMA and NEPA. Public involvement in the ODNRA planning process began in March, 1991. Initial activities included scoping sessions and a newsletter survey. In January, 1992, five draft management alternatives were presented to the public via open houses and a newsletter. Based on public response, three more management alternatives were developed. In April, 1993, a draft environmental impact statement (DEIS) was published for public review and comment via open houses and letters. Approximately 4200 letters were received during the 90-day comment period.

To supplement the formal comment period, the ODNRA contracted with the authors to conduct a series of public workshops during the summer of 1993. "The workshops were intended to provide a public forum, involving people with varied interests, in which [participants could] test ideas and develop collaborative suggestions for improvement of several planning issues at the [OD]NRA" (Siuslaw National Forest 1994: 20). These workshops employed Collaborative Learning, and were intended to achieve two major goals:

1. **Supplement the on-going public participation process required by NEPA.** The ODNRA had been conducting conventional public involvement activities such as open houses and letter-writing. They were generally structured in ways that feature question - answer - comment sessions, or individual statements. While these activities were very important, the CL workshops were designed to allow people to talk with one another about concerns, issues, and improvements. Through face-to-face discussions, people could learn about and test the ideas and views that may be expressed in letters or in large, formal public meetings. Workshop discussions could encourage people to go beyond competitive positions and attempt to find areas on which they could collaborate.
2. **Provide a forum for innovation and collaboration regarding the management of the ODNRA.** Public views related to the ODNRA were frequently stated as positions in opposition to one another. Citizen attempts to convince the decision-maker consisted of arguments in favor their particular "side," over any other. This type of communication, in effect, asks the decision-maker to arbitrate the conflict, the result of which may be a compromise that no one really prefers. The CL workshops were designed for collaborative discussions and decisions, to learn about the views of others, to locate areas of common ground, to generate improvements with diverse support, and to identify issues on which agreement did not seem likely.

4.2 Collaborative Learning applied

The Collaborative Learning workshop project for the ODNRA included a number of steps, which were organized into three stages:

Stage I
- Inform stakeholder groups and involve them in process design

Stage II
- Provide a common base of knowledge about major Dunes issues
- Identify concerns about ODNRA management
- Generate suggested improvements

Stage III
- Organize the improvements based on different strategic visions for the ODNRA
- Debate the improvement sets

The workshop results were presented in a report to the USDA-Forest Service and publics at the end of the project.

These Collaborative Learning steps were implemented through five ODNRA public involvement meetings: one for Stage I, three for Stage II, and one for Stage III. The Stage I meeting and the beginning of each Stage II meeting were devoted to the participants' learning about the CL process. At each Stage II workshop, the facilitators outlined the Collaborative Learning process and the ground rules for interaction. The ground rules emphasized various aspects of CL communication competence, particularly listening and collaborative argument areas. Activities at the Stage II workshops were designed to stimulate learning and the integration of scientific and public concerns. The content of the workshops varied between locations to reflect local concerns, but the workshop activities remained the same.

1. **Issue presentations.** The first portion of each Stage II workshop featured issue presentations addressing scientific and legal dimensions of ODNRA management. Talks were given on the snowy plover (a threatened species), European beachgrass (a non-native vegetation that is encroaching on the sand dunes), wetlands legislation, off-road vehicle legislation, and recreation use. Each presentation included a question and answer session.
2. **Panel discussions.** Following the issue presentations, each workshop included a discussion with panelists representing critical stakeholder groups. For example, the Florence panel consisted of a leader of the ORV community, a prominent homeowner with property adjacent to the Dunes, and an environmentalist (affiliated with a state-wide or national organization). Panelists at the other workshops included a county commissioner, a chamber of commerce officer, and a local economic development expert. The panelists talked briefly about their viewpoints and concerns and those of the groups they represented. They then engaged the workshop participants and one another in a question-answer-comment session.
3. **Best and worst views and situation mapping.** In addition to the issue presentations and panel discussions, two active learning tasks were used to create a common understanding of the ODNRA situation. When participants arrived at the Stage II workshop, they were given blank cards and asked to write down their best and worst imaginable futures for the ODNRA. Workshop assistants transferred these "bests" and "worsts" to newsprint and displayed them on walls for all participants to see. This activity demonstrated that most people's interests in the ODNRA situation were far more compatible than either their prior expectations or positions may have indicated.

   A common behavior when dealing with situations as complex as the ODNRA is to choose a single cause and attribute all of the negative features of the situation to it ("it's all due to ORVs"; "it's all due to beachgrass"; "it's all due to radical environmentalists"). A second activity, designed to promote more complex systems thinking was to build cognitive maps of the situation (called "situation maps" at the workshops). The purpose of situation mapping was to create a shared visual representation or "rich picture" (Wilson and Morren 1990) of the ODNRA situation that included enough material so that all participants could see their interests and concerns satisfactorily represented. A properly constructed situation map shows that a given situation has many possible causes and thus presents many possibilities for improvement. It is a systems view of the problematic situation, encouraging participants to think systemically about concerns, interests, needs, and situation improvements.
4. **Individual and small group tasks.** A third participant-centered learning task provided a transition from common understanding to action: identifying themes of concern and interests (drawing upon CL phases four and five). In this task, participants selected aspects of ODNRA situation, as shown on the situation map, that concerned them or that they thought could be improved. This activity paralleled "issue identification" in traditional problem-solving and "focusing on interests" in mutual gains negotiation (Fisher and Ury 1981). Participants identified concerns individually, and then discussed them initially in pairs, followed by groups of six to eight. Concerns emerging from the groups were recorded on overhead transparencies and presented to the entire workshop.

The next active learning task took the discussion from concerns to improvements (CL phases four, five, and six). Based on their themes of concern and interests, participants generated ideas that they considered to be desirable and feasible improvements to the current ODNRA management situation or its preferred alternative. They developed improvements individually and subsequently discussed them in pairs and then larger groups. Participants engaged in some preliminary debate about the desirability and feasibility of improvements, although they primarily talked about the details of and need for the improvements.

The ODNRA Stage II workshops produced, via collaborative discussions, numerous statements of concerns and interests and a set of improvements for management of the ODNRA situation. As facilitators, we reviewed the workshops' 73 proposed improvements. This review resulted in a number of "draft improvement texts", much like single-negotiating texts (Raiffa 1982), which were then distributed to participants in the Stage III meeting. Three Stage II participants were solicited to develop their own "improvement texts" on the issues of ORV management, beachgrass control, and economic/community development. These, too, were distributed to Stage

III parties. After discussing ground rules, Stage III participants organized themselves into issue-centered work groups (e.g., beachgrass, ORVs). They discussed and debated these improvement texts, suggesting changes, additions, modifications, and deletions (CL phases seven and eight).

4.3 Substantive impacts of the project

Following the Stage III meeting we prepared final versions of the various draft improvement texts and presented them to the leadership teams of the Siuslaw National Forest and Oregon Dunes National Recreation Area. It was the prerogative of the Forest Service to adopt or reject any of the proposed improvements (a key legal consideration, in light of laws such as the Federal Advisory Committee Act of 1973). It is possible to compare the agency's Preferred Alternative in the Draft Environmental Impact Statement (DEIS) with the final outcome in the Record of Decision (ROD) to assess the impact of the Collaborative Learning process. There were three specific areas of change: a more sophisticated ORV management plan, a more aggressive beachgrass eradication program, and more emphasis on local community development.

The DEIS proposed a series of restrictions on ORV use, including area closures to protect resources, noise-reduction buffer strips and a uniform curfew prohibiting night riding (Siuslaw National Forest 1993: 18,19, 24-30). The restrictions in the ROD included a phased-in noise reduction goals (decibel limits), buffer strips around residential areas (which ORV groups would help establish and enforce), and a variable curfew that retained night riding in the central (most isolated) portion of the ODNRA. The ROD also provided additional ORV routes through designated wetlands, and reduced the width of noise control buffers in one area (Siuslaw National Forest 1994: 3, 7, 8). In short, the final plan offered at least as great a potential for reducing ORV-generated conflict as did the draft, but also allowed for highly valued activities such as night riding and access to key areas.

The DEIS stated that while beachgrass was spreading at perhaps 400 ha/year, the Preferred Alternative was to treat only 40 ha annually, with the conclusion that "Chances of success of the control measures are far from certain. Most of the ODNRA would continue to change rapidly and be overrun with beachgrass" (Siuslaw National Forest 1993: 19). The Collaborative Learning workshops raised the awareness that the core values of ODNRA were all related to open sand, and that the spreading beachgrass was forcing everyone's activity onto increasingly scarce acres of open sand. Commitment to more aggressively combat beachgrass was the most unanimously shared view to result from the process. Indeed, common ground on various issues began to emerge as the beachgrass was identified as the factor that most restricted the physical common ground. The ROD included plans to treat 2000 ha over 10-15 years, stating that "The Forest Service will manage vegetation at the Oregon Dunes NRA more aggressively that we have been...Almost everyone involved with review of the DEIS said the Forest Service should do something about this issue". (Siuslaw National Forest 1994: 12). The priority areas for treatment were driven by habitat restoration for threatened or global species, reduce fire hazard, and restore natural dunal processes.

While the DEIS spoke to issues of the community impact of the ODNRA, it was largely silent as to any agency efforts to enhance that process through the management of the ODNRA. The ROD is more assertive, with the deciding official stating that

"In deciding management direction for the NRA, its economic importance, as well as its 'quality of life' importance, to nearby communities was a primary consideration in my thinking. I have made a diligent effort to strike a reasonable balance between the area's ability to contribute economically and long-term conservation of the resource values that contribute to a positive quality of life and for which Congress designated it an NRA" (Siuslaw National Forest 1994: 19).

In addition, the Forest Service committed to participate in local initiatives to explore local business opportunities related to the ODNRA, as well as in a proposed workshop of community development specialists, two concepts that emerged directly from the Collaborative Learning workshops.

4.4 Some observations about Collaborative Learning in practice

Collaborative learning has been applied in a number of public lands situations in the Pacific Northwest of the United States since 1992. Both informal feedback and survey results seem encouraging. The various forms of data show that people often see collaborative discussion and negotiation as the best means for meeting their objectives. When these processes promote face-to-face talk - information sharing, learning, problem-solving, and compromising - they create and maintain shared ownership in the management plan development process.

The results of these applications indicate that a Collaborative Learning framework can help parties make progress on a problem situation in various ways:

- Participants' understanding of the situation is broadened.
- Concerns are expressed, listened to, and meaningfully discussed.
- Improvements have been developed and implemented.
- Strategic behaviors persist.
- Relationships improve moderately.

Through CL activities, parties broaden their understanding of the situation by learning to see it as a complex system of issues. CL promotes discussion of stakeholders' concerns, from which parties develop tangible improvements that reflect their understanding of the particular situation as a system. It provides a structured approach to discussing and improving a problematic situation, such as those inherent in ecosystem management. CL does not require any reallocation of decision authority, nor does it try to limit parties' strategic behaviors. Self-interest typically motivates people to participate in a CL process. Further, it does not require consensus. At the ODNRA workshops, for example, consensus emerged only on the need for beachgrass management and economic/community development; disagreement persisted on the methods available to meet these needs. Consensus is not required to make progress. Parties' agreement on an issue or broadening of self-interest to include the interests of others stem from their own choices, based on their understanding of the situation and willingness to work through issues with others.

Collaborative Learning empowers participants as part of a community of model builders, systems thinkers, arguers, and decision-makers. It takes effort and involvement. With attention paid to both structure and interaction, CL is designed to offer an adaptive framework suitable for multi-party, multi-issue disputes. It may serve as a useful alternative to typical public participation methods and generate more meaningful dialogue and better dispute management decisions. With its emphasis on systems thinking and its sensitivity to the complexities of natural resource situations, Collaborative Learning, seems consistent with both the emerging philosophy of ecosystem-based management. CL, like other new public participation and dispute management frameworks, will hopefully be part of the practice of ecosystem-based management as well.

5. SUMMARIZING COLLABORATION, COLLABORATIVE LEARNING, AND THE OREGON DUNES

Trust and legitimacy are central tenets of governance (short of achieving one's goals through administrative fiat and military might). They are also foundational to collaborative processes. Even so, nothing in CL or similar frameworks guarantees that disempowered peoples or communities will participate in conflict management activities or that governments, corporations, or well-organized interest groups will necessarily want them involved. Government agencies have to seek non-traditional ways to involve non-traditional participants. Some communities, for example, may not feel comfortable participating in any process if that process uses an unfamiliar language, does not respect certain traditions, takes place in a strange setting, and so on. Natural resource leaders in government and non-government organizations need to be innovative in identifying mechanisms for communicating with marginalized groups.

Collaborative Learning empowers participants as part of a community of model builders, systems thinkers, arguers, and decision-makers. It takes effort and involvement. With attention paid to both structure and interaction, CL is designed to offer an adaptive framework suitable for multi-party, multi-issue disputes. It may serve as a useful alternative to typical public participation methods and generate more meaningful dialogue and better dispute management decisions. With its emphasis on systems thinking and its sensitivity to the complexities of natural resource situations, Collaborative Learning, seems consistent with both the philosophy of ecosystem-based management. CL, like other new public participation and dispute management frameworks.

Collaborative Learning, as it was applied in the ODNRA situation, presumes that situations are dynamic, systemic, and changing. CL is a framework that can be adapted to a particular situation to generate:

- Dialogue between diverse communities: scientific, public, administrative.
- Integration of scientific and public knowledge about the problem situation.
- Increased rapport, respect, and trust among participants.

While beneficial within an ecosystem-based management approach like the ODNRA situation, CL is no panacea or "silver bullet". It is one of possibly many frameworks that can involve people in meaningful learning and discussion about ecosystem management situations. It does not stress or demand consensus, but emphasizes learning, understanding, and developing improvements in the situation. CL does not foster the development of a group "mentality" or "recommendations"; rather, it encourages parties to make progress on improving the situation as they work through issues, values, and concerns.

Specifically regarding the Oregon Dunes project, respondents to a follow-up survey not only supported collaborative discussion, they strongly supported the involvement of the Forest Service and other land management agencies, and considered the workshop design constructive in promoting agency involvement. Participants appeared to value government agencies not as mediators, but as fellow stakeholders. They appreciated the opportunity to work with agency representatives, to learn from them and with them. The various learning-motivated activities - issue presentations, situation mapping, and generation of improvements - all seemed to be effect in addressing the complex ODNRA management situation. People attending the workshops expressed through their participation a desire to work with, not against, government agencies and other stakeholder groups. The ODNRA Collaborative Learning workshops channeled that desire for involvement into a constructive approach to dealing with the ODNRA situation, and one that seems applicable to other natural resource disputes.

Given the varied nature and inevitable complexity of natural resource conflict, methods must be employed that foster innovative learning, constructive communication, and decision making. If a structured method is used, it is irrelevant if it goes by Collaborative Learning or any other name. Perhaps the only thing that matters, at the core, is that it make progress on the paradox of public deliberation: it must be able to generate technically sound decisions, while simultaneously allowing stakeholders rich and meaningful voice in the process. The scientific burdens of environmental conflict management, combined with the range of interests involved, appear to require nothing less.

NOTES

1. Earlier versions of parts of this paper have been presented at the Western Social Science Association conference, Albuquerque, NM, 22 April 1994; at the Speech Communication Association conference, Miami Beach, Florida, 20 November 1993, and at the National Conference on Peacemaking and Conflict Resolution, Portland Oregon, 01 June 1993.
2. Arguably, in a strict sense, Collaborative Learning is not mediation, for it is not preoccupied with reaching a "settlement". To the extent that mediation can be conceived of broadly as intervention by an impartial external party to promote constructive dialogue, argument, and negotiation toward the goal of "situation improvement", then Collaborative Learning can be thought of as a form of mediation.

3. A more in-depth treatment of the Oregon Dunes Collaborative Learning Project is found in Daniels and Walker (1996).

REFERENCES

Amy, D. 1987. The politics of environmental mediation. New York: Columbia University Press.

Blahna, D. and Yonts-Shepard, S. 1989. Public involvement in resource planning: Toward bridging the gap between policy and implementation. *Society and Natural Resources* 2(2): 209-227.

Brittel, J. 1991. *Forest Watch* 11(10):17-24.

Blake, R. and Mouton, J. 1978. The new managerial grid. Houston, TX: Gulf.

Blahna, D. and Yonts, S. 1989. Public involvement in resource planning: Toward bridging the gap between policy and implementation. *Society and Natural Resources* 2(2):209-227.

Brittel, J. 1991. Negotiating to win. *Forest Watch* 11(10):17-24.

Bulow, I. von. 1989. The bounding of a problem situation and the concept of a system's boundary in soft systems methodology. *Journal of Applied Systems Analysis* 16, 35-41.

Checkland, P. 1981. Systems thinking, systems practice. New York: John Wiley.

Checkland, P. and Scholes, J. 1990. Soft systems methodology in action. New York: John Wiley.

Cormick, G. 1982, Winter. Intervention and self-determination in environmental disputes: A mediator's perspective. *Resolve*, pp.1-7.

Crowfoot, J. and Wondolleck, J. 1990. Environmental disputes: Community involvement in conflict resolution. Washington, D.C.: Island Press.

Daniels, S. and Walker, G. 1993a. Managing natural resource disputes: The Collaborative Learning approach. Paper presented at the National Conference on Peacemaking and Conflict Resolution, Portland Oregon, 01 June 1993.

Daniels, S. and Walker, G. 1993b. Complexity in natural resource disputes. Unpublished manuscript, Oregon State University, Corvallis, OR.

Daniels, S. and Walker, G. 1996. Collaborative learning: Improving public deliberation in ecosystem-based management. 16 (2):71-102.

Dixon, K. 1990. Dissatisfaction with the Forest Service among participants in the preparation of national forest management plans. Unpublished report, University of Arizona.

Fisher, R. and Ury, R. 1991. Getting to yes. 2nd ed. New York: Penguin.

Flood, R.L. and Jackson, M.C. 1991. Creative Problem Solving: Total Systems Intervention. Chichester, UK: John Wiley.

Folger, J. and Poole, M. 1984. Working through conflict. Glenview, IL: Scott, Foresman.

Gray, B. 1989. Collaborating. San Francisco: Jossey-Bass.

Henning, D. and Mangun, W. 1989. Managing the environmental crisis. Durham, NC: Duke University Press.

Hocker, J. and Wilmot W. 1991. Interpersonal conflict, 3rd. ed. Dubuque, IA: Wm. C. Brown, 1991.

Hunter, S. 1989. The roots of environmental conflict in the Tahoe basin. In Kriesberg, L.; Northrup, T. and Thorson, S. (eds.). Intractable conflicts and their transformation. Syracuse, NY: Syracuse University Press.

Kriesberg, L. 1989. Conclusion: Research and policy implications. In Kriesberg, L.; Northrup, T. Thorson, S. (eds.). Intractable conflicts and their transformation. Syracuse, NY: Syracuse University Press.

Lee, K. 1993. Compass and gyroscope: Integrating science and politics for the environment. Washington, D.C.: Island Press.

Lewicki, R. and Litterer, J. 1985. Negotiation. Homewood, Ill: Unwin.

Lustig, M. and Koester, J. 1993. Intercultural competence: Interpersonal communication across cultures. New York: Harper Collins.

Mohai, P. 1987. Public participation and natural resource decision-making. *Natural Resources Journal* 27(1):123-155.

Moore, C. 1986. The mediation process. San Francisco: Jossey-Bass.

Moore, C. 1988. Techniques to break impasse. In Folberg, J.; Milne, A., eds. Divorce Mediation: Theory and Practice. New York: Guilford.

Osborne, D. and Gaebler, T. 1992. Reinventing government. New York: Peguin.

O'Toole, R. 1988. Reforming the Forest Service. Washington, D.C.: Island Press.

Overbay, J. 1992. Ecosystem management. In USDA Forest Service. Proc. Nat. Workshop: Taking an ecological Approach to Management. Salt Lake City, UT 27-30, April 1992. USDA For. Ser. Watershed and Air. Mgt. WO-WSA-3.

Putnam, L. and Holmer, M. 1992. Framing, reframing, and issue development. In L. Putnam; M. Roloff eds., Communication and negotiation. Newbury Park, CA: Sage.

Pruitt, D. and Rubin, J. 1986. Social conflict: Escalation, stalemate, and settlement. New York: Random House.

Senge, P. 1990. The fifth discipline: The art & practice of the learning organization. New York: Doubleday Currency.

Shannon, M. 1991. Building public decisions: Learning through planning, an evaluation of the NFMA planning process. Washington, D.C.: U.S. Congress Office of Technology Assessment background paper.

Siuslaw National Forest. 1993. Draft Environmental Impact Statement for the Oregon Dunes National Recreation Area Management Plan. USDA, Forest Service, Pacific Northwest Region.

Siuslaw National Forest. 1994. Record of Decision: Dunes Management Plan. USDA, Forest Service, Pacific Northwest Region.

Spitzberg, B. 1988. Communication competence: Measures of perceived effectiveness. In C. Tardy, ed., A handbook for the study of human communication. Norwood, NJ: Ablex.

Thomas, J. 1994. New directions for the Forest Service. Statement before the Subcommitteeson National Parks, Forests and Public Lands; and Oversight and Investigations, Committee on Natural Resources, United States House of Representatives, 3 February.

Tjosvold, D. 1991. The conflict-positive organization: Stimulate diversity and create unity. Reading, MA: Addison-Wesley.

U.S. Congress, Office of Technology Assessment. 1992. Forest Service planning: Accommodating uses, producing outputs, and sustaining ecosystems. OTA-F-505. Washington, D.C.: U.S. Government Printing Office.

USDA-Forest Service. 1990. Critique of land management planning, volume 2: National Forest planning: Searching for a common vision. FS-453. Washington, D.C.

Walker, G. 1991. Argumentation, collaborative argument skills, and mediation. Paper presented at the National Conference on Peacemaking and Conflict Resolution, Charlotte, NC, 08 June.

Walker, G. 1992. Toward a theory of conflict communication competence. Paper presented at the International Association for Conflict Management conference, Minneapolis, MN, 20 June.

Walker, G. and Cue, W. 1987. Advocacy and influence in integrative negotiation: "win-win" argumentation. In: Wenzel, J. (ed.), Argument and critical practices: Proceedings of the fifth SCA/AFA conference on argumentation. Annandale, Va: Speech Communication Association.

Wilkinson, C. 1992. Crossing the next meridian: Land, water, and the future of the west. Washington, D.C,: Island Press.

Wilson, K. and Morren, G. 1990. Systems approaches for improvements in agriculture and resource management. New York: MacMillan.

Wondolleck, J. 1988. Public lands conflict and resolution: Managing national forest disputes. New York: Plenum Press.

PARTICIPATION AND CONFLICT MANAGEMENT IN NATURAL RESOURCES DECISION-MAKING[1]

Jerome Delli Priscoli
Institute for Water Resources
U.S. Army Corps of Engineers
USA

ABSTRACT

The importance of Conflict Management and Public Participation to natural resources decision-making is growing. This paper explores some of the reasons why and how this is happening. The paper begins by analyzing how participation and conflict management relate to natural resources decisions and to each other. It then reviews six key concepts and principles common to both. The paper then examines similarities and differences and the growing blurring of the distinctions between participation and conflict management. The paper concludes with thoughts on how participation and conflict management will help build consensus on pro-active ecological design in natural resources decision-making.

Key words: Conflict management, alternative dispute resolution, public participation, policy world, nature of agreement, causes of disputes

1. INTRODUCTION

A new democratic spirit and a new ecological spirit are two of the most powerful transformational forces in today's world. The interaction between these forces is driving much change in industrialized, reindustrializing, and even third world countries. The democratic spirit calls us to individual freedom, empowerment and transformation. The ecological spirit calls us to a new collective consciousness, collective restraint and a new relationship with nature. But will these forces work to bring people together or to create more adversarial relations?

Both spirits confront us with a complexity at a time when increasingly we are mesmerized by 60-second sound bites. Both spirits confront us with new responsibilities to understand and accept uncertainty at a time when we in the industrialized world seem constantly to seek a risk-free environment. At a time when people complain about government and bureaucracy, it seems that both spirits confront us with dependence on

Birger Solberg and Saija Miina (eds.)
Conflict Management and Public Participation in Land Management
EFI Proceedings No.14, 1997

technical experience and the concomitant increases in bureaucracy and regulation. Both spirits call us to anticipate and to employ long-term vision. At the same time, we seem to be inextricably pushed by rapid rates of change into a short-term focus.

More voices are demanding a say in deciding how our natural resources will be used. These voices represent old as well as new values for those natural resources. Since natural resource decisions have traditionally been made in technical and administrative bureaucracies, new forms of accountability must be created. All this change highlights new and often bitter conflicts which usually result in the call for expanded stakeholder participation and better conflict management tools. But expanded stakeholder participation, itself, often highlights the problem of managing and resolving conflict as impasse frequently results from so many competing voices. Our democratic instincts for more participation as the route to dealing with new value conflicts in our natural resources decision-making can thus be thwarted.

2. DIFFERING CONTEXTS OF PARTICIPATION AND CONFLICT MANAGEMENT

While the new fields of Conflict Management (CM), often referred to as Alternative Dispute Resolution (ADR) and Stakeholder Participation employ similar techniques, they are often driven by different values. Both seek to improve democratic decision-making, especially technical and administrative decision-making. However, participation focuses on articulating interests, building citizenship and recreating what many commentators call a civic space between the public and private. Conflict Management (CM) and ADR focus on aggregating interests and getting agreements. These are not necessarily mutually exclusive but they can conflict.

Over the years we have seen many examples of good stakeholder participation which result in no resolution and impasse. Indeed, many in the ADR community criticize participation advocates on these grounds. But we have also seen resolution achieved through good ADR and conflict management which resulted in the shut down of facilities, such as waste burn sites, due to insufficient participation. Even a recent US attempt to produce a national wetlands delineation manual which achieved great consensus through excellent ADR and mediation was shelved due to lack of full stakeholder participation.

A survey of participation practitioners by the International Association of Public Participation (IAP) describes the core values of participation as[2],

1. People should have a say in decisions about actions which affect their lives.
2. Public participation includes the promise that the public's contribution will influence the decision.
3. The public participation process communicates the interests and meets the process needs of all participants.
4. The public participation process seeks out and facilitates the involvement of those potentially affected.
5. The public participation process involves participants in defining how they participate.
6. The public participation process communicates to participants how their input was, or was not, utilized.

7. The public participation process provides participants with the information they need to participate in a meaningful way.

Both ADR/CM and participation processes confront the challenge, "Who is and who should be at the table?" Frequently, ADR/CM procedures push to reduce the numbers at the table. This is necessary to effectively mediate and negotiate. They look for surrogates or aggregate representation. Often the design of ADR processes subtlety turns to bringing those with certain power and clear voice to the table such as the experts, those with money and position. These procedures can easily leave out the voiceless or those who will be affected but do not know it. Thus ADR/CM sometimes are accused of being handmaiden to special interests.

But the serious question is who can represent who? Can the leader of a community group, with the best intentions, actually deliver the group he/she claims to represent? The problem is a little like the difference between direct democracy and representative democracy. It often surfaces in the US as ADR/CM create advisory groups and then struggle to avoid regulations of open meetings and access contained in advisory committees guidance.

Unfortunately, as practitioners struggle with such issues, there has been a tendency to rewrite history. Many ADR/CM specialists say participation was done to let people have a say. However, they say it has been the "hard nosed" ADR specialists who have taken it a step further to get resolution. This is misleading because some of the earliest participation efforts in natural resources decision-making were explicit consensus building efforts. This is also misleading because many of the ADR/CM tools were born out of participation efforts. For example, environmental mediation has roots in the traditions of facilitated and collaborative problem solving of the 1970s as well as the more structured labor management bargaining. The first was born of the need to deal with multi-parties and interests while the second frequently is born of few parties and clearly defined/end interests. The fact that practitioners see the need for a special field called "environmental mediation" is testament to the overlap between participatory and ADR methods.

Both participation and ADR/CM use similar tools, principles and approaches but can be driven by different values. Participation is often driven by the values of empowerment, creativity, open access to government and building civic culture. ADR/CM, while also influenced by such values, is driven by values of efficiency, timeliness, cost/effectiveness of decisions. Indeed, ADR/CM is often sold explicitly or implicitly on such utilitarian grounds.

The varying emphasis on such values can and often do conflict. For example, ADR/CM is often not reflective of the process values it asks those who participate to buy into. ADR/CM often assume their universality. This has generated major critique of the ADR/CM techniques from other parts of the world, especially the Islamic world. It has been critiqued for its bias toward compromise and relativism. But such critique has also emerged from subcultures within the US. Some have noted that ADR/CM has come close to creating a "process paternalism" of third party experts who will help you solve your problem to replace the older professional paternalism it seeks to displace.

While also utilitarian, participation is more reflective of the process values it encourages participants adopt. It is more explicit about the ends and purposes of

process itself. In a sense, participation is more encompassing than ADR/CM. It goes to the roots and nature of civic discourse and civic infrastructure; the creation of the civil society. Participation is at the heart of the classic defense of democracy found in Percilces funeral oration and J.S. Mill's active self helping citizen. Namely, that participation in affairs that effect their lives makes better citizens and thus government. Participation is in many ways the pre-condition for what we in the Western industrial world call ADR/CM. It includes and actively fosters such rights and values as rights of assemble, freedom of speech and access to information.

Those who do ADR/CM are no less democratic than those who advocate participation. Those who advocate participation are not necessarily less driven by reaching agreement. Both ADR/CM and participation are dealing with social power and structure. However, they tend to differ in where they philosophically intervene in such structure and power.

Six concepts of public involvement and dispute resolution

• Levels and causes of conflict

Figure 1. outlines a world divided into policymakers, scientists and publics. While simplistic it does parallel what many professionals use in environmental conflict management. As we can see, the policymakers are not one entity. They include elected officials and administrative officials of various types. We all know that elected officials can have tremendous disagreements among themselves. This is also true of administrative officials and professional civil servants who frequently represent agencies with different missions. Indeed, scientist themselves often disagree. It does not take experience with too many controversies until one can recognize a variant Newton's Second Law, "For every Ph.D., you can find an opposite and equal Ph.D".

There are many ways of looking at the public. Indeed, there is no one public but rather, many publics. For a natural resources controversy, we might find formally organized publics or informally organized publics. We may find publics who are directly affected and those who are indirectly affected. I am sure we can draw clearer distinctions. The point is that we are seeking to understand how public awareness helps us reach some agreement among those three elements, no matter how we subdivide them. This agreement is represented by the shaded area in the middle of these circles. However, agreement itself should be explored further.

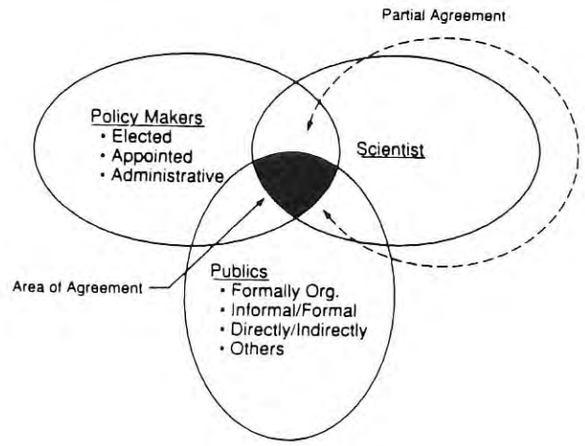

Figure 1. Policy world.

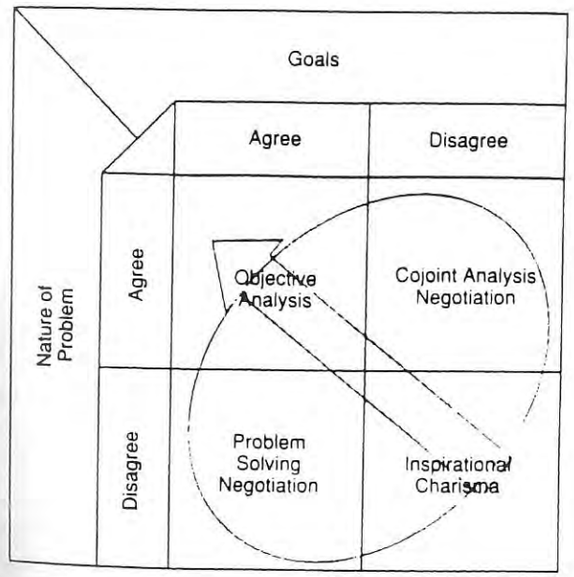

Figure 2. Nature of Agreement in Policy World.

Figure 2 explores the nature of agreement in a simple two-by-two table. (Vlachos, 1988). This table outlines agreement or disagreement among these three distinct groups over either the goals or the nature of a problem. Depending on the nature of agreement, different analytical activities on policy processes are called for. As the table demonstrates, Cell 1 is called Objective Analysis. Such analysis is appropriate here because agreement on the goals and the nature of the problem exists. Cell 4 indicates disagreement on the goals and disagreement on the nature of the problem. Such a situation requires some type of inspiration or other charisma. While we frequently act, as if we are in Cell 1, the normal condition for environmental and natural resources situations is Cell 4. While frequently not conscious of our behavior, we usually seek to move immediately from Cell 4 into Cell 1; however, this does not work and usually we are frustrated.

Cell 2 represents a disagreement over goals but a general agreement on the nature of the problem. In this cell, we use analysis or other forms of negotiations. In Cell 3, we find disagreement on the nature of the problem and some general agreement over the goals. In this case we look at joint problem solving, negotiations or other collaborative approaches.

The point is that to get to Cell 1 - the place where most technical natural resources professionals are most comfortable - we must usually move through either Cell 3 or Cell 2. This is true because much of the natural resources and environmental conflict we encounter is not based primarily on "facts" but values. Resolution depends on dealing with the interest and values or other causes at stake in a controversy. These causes usually are beyond facts. Actually, we usually spend much time moving between cells 2 and 3, that is, discussing goals, coming to agreement on the goals and then redefining the nature of the problem and then going back to goals. This iterative process is the crux of natural resources planning. It is not possible to state how much iteration is necessary between cells 2 and 3. It is only important to know that we must move through analytical activities implied by Cells 2 and 3 before we move to what is identified as Objective Analysis in Cell 1. In other words, we must understand the sources of conflict and design processes to deal with the sources. That is what is implied by moving between Cell 2 and Cell 3.

Participation raises, identifies and clarifies conflicts. This can make it uncomfortable to those in authority. However, it can help clarify the causes of conflict as portrayed in Figure 3. Participation is particularly helpful in identifying and mapping the values driving interests in the conflict. Participation also creates a sounding board and reality check for negotiated agreements among smaller groups of stakeholders representatives. It is a test of the consensus. However, participation is also likely to push us to broaden our constituency bases.

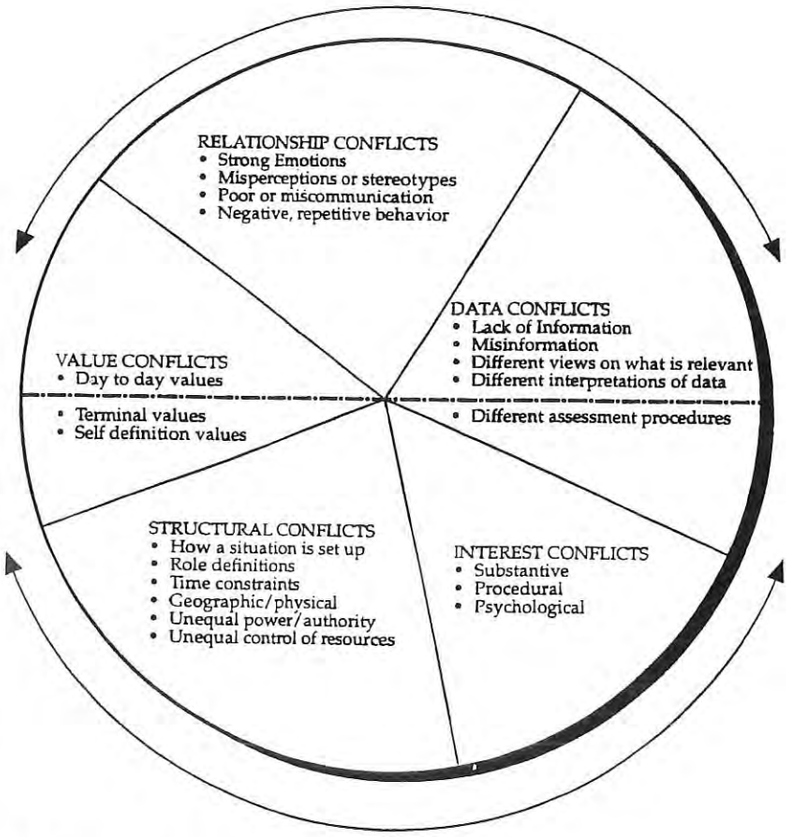

Figure 3. Causes of disputes.

The conflict management literature distinguishes four main causes of conflict (Negotiating... 1986). The first is conflict over data. Data conflicts result from a lack of information, misinformation, different interpretations of data and different views of other relevant data. For example, controversy often develops because of failure to exchange information, necessary to fully understand issues. Government agencies and technical groups are inclined to dispense material written so as to be unintelligible to the average people. Companies prepare reports according to government regulations, but often exclude information that is not required by law but may be necessary for citizens or the agency to understand the rationale for actions. Public interest groups frequently express their views of a situation in such apocalyptic terms that the information is lost in the actual way it is delivered. Disputing parties often have different standards for evaluating information and different views of the relevance of data. Conflicts generated by data disagreements are the easiest to solve.

The second cause of conflict is called interest conflict. Conflicts can develop over seemingly incompatible interests. Interests or needs are tangible results that are satisfied through the outcome of a dispute so that the settlement will be satisfactory and durable. Interests can be substantive in nature. They may refer to the process by which a settlement is reached, or they may refer to the psychological needs of the people in the conflict.

Conflicts may also be generated by value differences. Value conflicts develop when disputants use different criteria for evaluating conflicting outcomes, espouse different lifestyles or goals or they profess diverse ideologies, different religious beliefs or views of the way the world ought to be. Values are the foundation for interests and needs.

Conflicts can also be generated over relationship issues. Relationship conflict often results from the build-up of poor expressions, strong emotions, stereotyping, poor communication skills and of repetitive negative behavior. The resulting disputes are often unnecessary because they are not based on substantive disagreements.

Relationship conflicts require us to focus on building positive relationships or good feelings, anchor positive perceptions and productive communications. Because personal relationships are of primary importance, relationship conflicts must be dealt with "up-front" before dealing with substantive issues. Throughout the conflict resolution process, we must constantly attend to relationship conflicts. Technical professionals frequently want to treat conflicts in their technical area of expertise as primarily data conflicts. In other words, they prefer to be in Cell 1 of Figure 2. However, in most water resource disputes, we find ourselves in Cell 4 or perhaps cells 3 and 2. In any of these situations, the primary cause of the conflict is rarely data. It is more likely values, interests or possibly relationship issues. We cannot expect that conflicts will be resolved by processes adequate for one cause of conflict when, indeed, most conflicts are being driven primarily by totally different causes.

• Design to values

Experience has shown that differing values are a primary source of environmental conflicts. Figure 4 outlines a recent case where water resources planners needed a projection for electrical energy demand in the Pacific Northwest of the United States to the year 2000. Four professional projections were available (Delli Priscoli 1987b). Each projection was internally consistent and done by fine modeling methods.

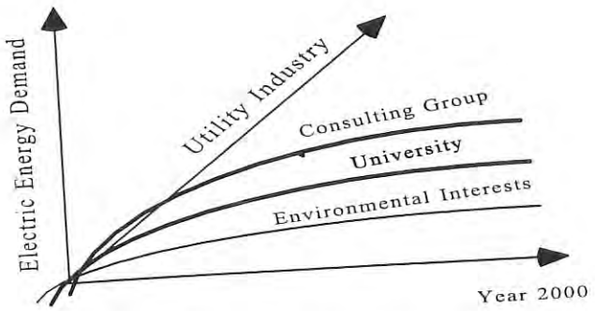

Figure 4. Electrical energy needs in the year 2000 for the Pacific Northwest.

Not surprising, utility interests projected an increased need, while environmental interests projected a decreased need for electric energy. Projections made by a major university and a consulting firm fell in between. Although one cannot predict the absolute number, by simply knowing who made the projection one can easily project their relative positions of the projections. Essentially, these professional and technical projections are elegant statements of how these organizations feel the world "ought to be". That is, they contain a political message.

Even if rarely acknowledged, it is no surprise that projections are value-based and assumption driven. However, to engage in the crucial assumption game requires a working knowledge of modeling and technical proficiency. Consequently, those whom these projections serve, are frequently excluded from the game. Therefore, it is no wonder that the people whom the projections serve feel no ownership in the projections and subsequently either ignore or reject the projections.

In short, the projections are neither purely technical nor political. They are a hybrid. The water resources professional must now be able to both draw the lines that we see in Figure 4 and to encourage a broadly based value consensus around the assumptions underpinning these lines. It is the second point which we ought to emphasize. The professionals must understand values underlying the conflicts. Once understanding these values, alternatives must be designed which service the range of values. It is these alternatives which then can be used to negotiate consensus. That is, we must start our technical programs and engineering design only after understanding the range of values. Designs and alternatives must be created for the different values. We must understand that traditional technical alternatives frequently carry with them sets of values which represent a far more narrow set of values than is necessary to satisfy this requirement. Thus, we must design to values rather than unconsciously dictate values through advocacy of narrow technical and predetermined solutions.

• Visibly isolate extremes

Practically, public involvement and conflict management programs should visibly isolate extremes. This sounds manipulative and somehow distasteful. Let me explain. Programs should create incentives for participants to find and move to a middle ground. Public involvement programs should facilitate a shared ownership of solutions, alternatives and recommendations such that alternatives may be implemented. This means creating an environment where compromise is acceptable. As we have learned, public awareness rapidly becomes more than public information. Public information and public relations are critical skills to be used by doing involvement but they are not sufficient in and of themselves.

While practical people understand that all conflict will not always be solved short of court, war or other adversarial methods, public involvement programs seek to solve as much conflict as possible without going the expensive route of litigation. Public involvement and conflict management programs attempt to create an environment where the clash of alternative viewpoints are synergized into creative solutions which have not been previously conceived, rather than canceling out one another.

Figure 5 graphically outlines this concept. In a traditional adversarial model, as shown in Figure 5(A), the only way to play is to be "for" or "against". The pressures

are to move to the extremes and out of the middle ground. Those in the middle will either drop out or gravitate to the extremes. We hire our lawyers to characterize and to do battle for us. There is little reward to be in the center.

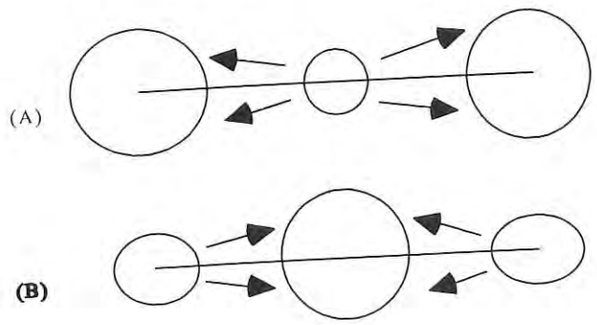

Figure 5. Visibly isolating extremes.

But the successful resolution begins with finding shared middle ground and creating alternatives, as represented in Figure 5(B). To a great degree, existing reliance on the adversarial paradigm excludes building the shared ground. The adversarial model is not always useful. For example, in planning water resources development, once we assume that we will resort to the adversarial model or to the courts, all of our planning documentation subtly transforms our professional problem analysis into building a "case" under the legal "rules-of-evidence". In short, the means - litigation - has become the end. It has become the pervasive normative guide for data collection across disciplines. Polarization is thus assured. The system, whose conflict resolution ability we strongly believe in, begins to generate more intractable conflict than it solves.

So what do we do? First of all, extremes exist; we all know it and we should recognize them. Ignoring extremes does little good. Figure 5 seeks to show that we should visibly isolate such extremes. That is, we should recognize and publicize such extremes. In so doing, those who participate at the extremes do so publicly. That is, the cost for participation at the extremes is to be identified with extreme position. By providing "reasonable" alternatives to what appear to be "irrational" extremes, it is hard for extreme positions to maintain broadly based constituencies.

Many who are at the extremes are committed and have valid and important reasons for being at such extremes. One of the more important reasons is that by so locating themselves, they help move society's consciousness toward what they view are important and truthful values. However, for a public agency the objective is usually to find sufficient ground on which to build enough will to act. This means assuring that broadly based constituencies have alternatives. If there are broadly based constituencies supporting extreme positions, then, indeed, solutions will move in their direction. However, we have frequently found that the reliance on adversarial models

allows the claim for broadly based constituencies by extreme positions without clear and visible proof of such constituency support.

To many, this model appears counter-intuitive. After all, it requires a certain faith in the ultimate reasonableness of humans. However, such faith and reasonableness is, to a great degree, what our democratic systems are about. Indeed, much of our public involvement, conflict management activities and administrative processes are about helping our democratic systems adapt to changing conditions. This adaptation itself is built on such faith in reasonableness. Indeed, many of the decisions that we seek in the environmental area are, in fact, a search for the "reasonable" as opposed to some view of the "rational" decision.

• Negotiate on interests rather than positions

Traditionally, negotiations have been viewed as moving from one position to a counter position and to a compromise settlement. However, our experience in the environmental negotiations and other areas has shown that the joint problem solving approach which attempts to identify interests prior to examining specific solutions can be beneficial. This approach has come to be called interest-based-bargaining (Fisher 1982, Negotiations... 1986). It involves the collaborative effort to jointly meet each other's needs, interests and to satisfy mutual interests. After interests are identified, the negotiators jointly search for a variety of alternatives that may satisfy all interests rather than argue for any single position. Parties select a solution from mutually generated options. This approach is also frequently called integrated-bargaining because of its emphasis on cooperation, meeting mutual needs and the efforts by parties to expand bargaining options so that a wiser decision with more benefits to all can be achieved. In this sense, it is more than a simple compromise.

The approach depends on distinguishing among interests issues and positions. Issues are the "wha"t of our discussions. Interests are the "why". The positions are the "how". Throughout this approach to negotiations, participants and mediators constantly appeal to what has been called the best alternative to a negotiated agreement or BATNA (Fisher and Ury 1981).

In this approach, negotiators constantly seek to educate one another on their interests. In this sense, negotiations are seen as a social learning exercise. They are also seen as a creative process, in that they seek to generate a range of options and to create options that no one party may have conceived of before negotiations. In such an approach to negotiations, natural resources are not seen as limited (Negotiations... 1985). Negotiators' interests must be addressed for an agreement to be reached. Throughout the process, the main focus is on interests, before positions. Parties often look for objective, verifiable or fair standards that all can agree to. There is a belief that there are probably multiple satisfactory solutions. Negotiators become cooperative problem solvers rather than merely opponents.

• Durable settlements depend on achieving procedural, substantive and psychological satisfaction

To achieve a durable settlement, there are at least three types of interests which generally must be met (Lincoln 1986). These are:

- Substantive interests: content needs, money, time, goods or resources.
- Procedural interests: the needs for specific types of behavior or the "way that something is done".
- Relationship or psychological interests: the needs that refer to how one feels, how one is treated or conditions for ongoing relationships.

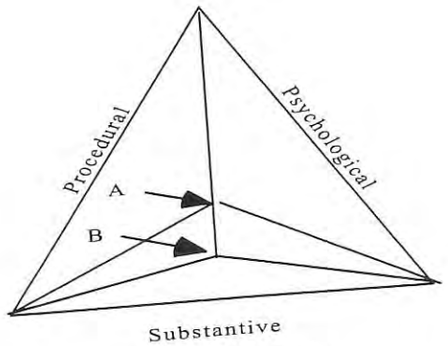

Figure 6. Satisfaction triangle.

How One Felt When They:	
(Won) (1)	(Lost) (2)
Great	Taken Advantage of
Victorious	Demoralized
Wonderful	Helpless
Superior	Inferior
Strong	Weak

Figure 7. Defining psychological satisfaction.

These interests can be seen in Figure 6. This is often called the satisfaction triangle. The above interests are represented on the three sides of the triangle. Ideally, any public involvement and conflict management process would be designed to seek point A. This point, in some sense, represents an optimal satisfaction of the procedural, psychological and substantive interests of each of the parties. Frequently, technical professionals, in designing conflict management and public involvement processes, implicitly or subconsciously behave as if they are reaching for point B. This point represents a situation which is high on the substantive or content aspects of the situation but relatively low on the psychological and procedural aspects. The point of this triangle is that public involvement and public awareness require an explicit design that seeks to maximize procedural, psychological, as well as substantive concerns. This is often uncomfortable and, in fact, often beyond the skill of many water resources professionals.

We know we have achieved procedural satisfaction when the parties to the process say they would use the process again. Different process techniques have been developed over the last 10 or 12 years to help achieve these levels of satisfaction. Substantive satisfaction is familiar to us. It is the environmental and natural resources content with which we spend our lives. We know when we have achieved it.

Psychological satisfaction is a little more difficult to conceive. Figure 7 above outlines one way to understand psychological satisfaction. The figure contains two columns; "Won" and "Lost". The words under each column indicate how one may feel when they perceive they have either won or lost in a dispute (Lincoln 1986). As you read down each column, you probably can think of other words which express your own feelings when you have either won or lost in a dispute. Now, the following

questions can be posed. What possibility exists for a durable settlement if one party feels the way that is described by the words in column (1) and the other party feels the way described by the words in column (2)? Can a durable settlement exist when both parties feel as described by the words expressed in column (2)? The answer in both cases, is little or no possibility! Parties must come close to feeling as described by the words in column (1) for durable settlements to exist. The point for us, as technical professionals in water resources, is that we must explicitly design processes which will result in such feelings.

• Use techniques which help parties to own both the problem and the solution

Figure 8 outlines a continuum of dispute resolution techniques. At the far let of the continuum we have what could be called the "hot tub" approach. In this case we all jump in the hot tub and somehow reach agreement. On the right hand extreme we have the high adversarial approach. This is either going to war, court or litigation. And in-between these extremes we can see a wide range of alternatives. Close to the right-hand column we find familiar arbitration which can be court ordered, binding or non-binding. These cases, while not following the full legal model, in many ways reflect legalistic approaches. Somewhat near point 14 but to the right of point 14 we find what has been called the mediation-arbitration approach.

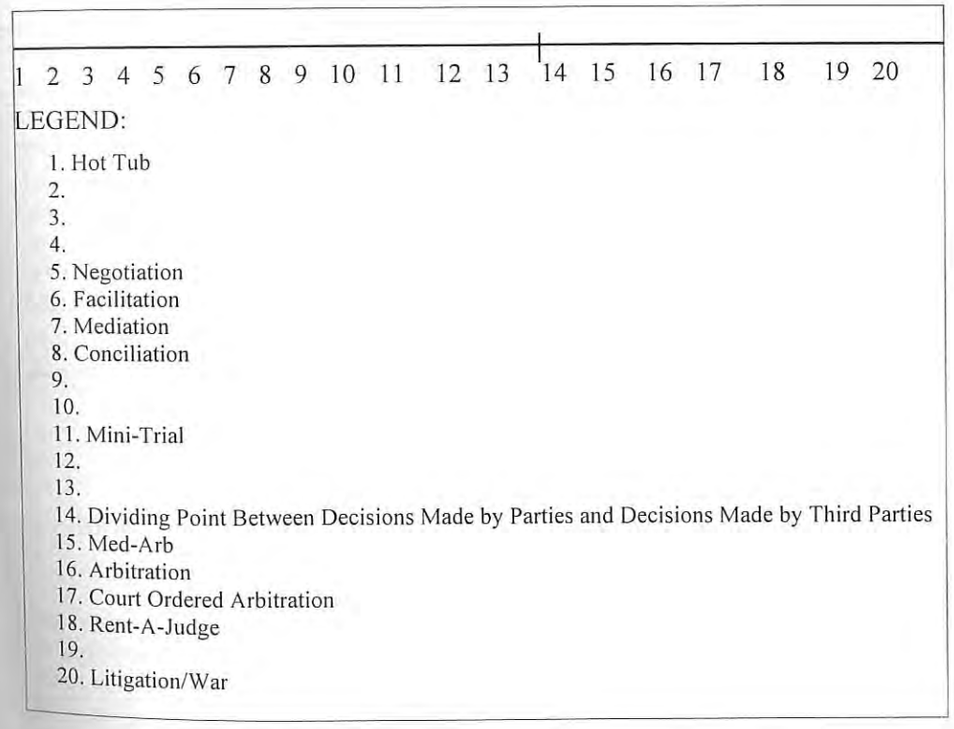

Figure 8. Dispute Resolution: A Continuum of Techniques.

Point 14 represents a dividing line. This is the dividing line between decisions made by the parties of interest and decisions made by a third party. In principle we try to use techniques to the left of point 14. That is because techniques in this area still leave decisions in the hands of the interested parties. The techniques to the left of point 14 encourage parties to own and solve their own problems. Once we start moving to the right of point 14, the decisions and outcomes tend to be handed over to outside parties. To the left of point 14 we identify facilitation, collaborative problem solving, mediation and conciliation. Each of these techniques are built on the principle that a third party can help the parties come to agreement by designing and nurturing a process of dialogue among the interested parties. The processes are fully voluntary and vary from informal to formal. The most informal is closest to the hot tub on the extreme left and the most formal is closest to point 14. However, in all cases they are built on the assumption that we separate the process by which we communicate and the content of the dispute. By bringing in a third party who is neutral and primarily concerned with process, we often liberate ourselves to more innovatively discuss the content of a dispute.

Facilitators are thought to be caretakers to the process. That is, they are pure process people. They engage in little or no discussion of the content. Their purpose is to suggest different ways of dialoguing so the parties may come to some agreement. Mediators, on the other hand, also take care of the process, however, they are more likely to engage in the content. They engage in content by listening to parties, by individually caucusing and perhaps helping the parties to develop substantive alternatives. The mini-trial is an interesting variation of these techniques which has gained popularity in the U.S. The mini-trial looks like a trial, however, it is really a structured discussion among the various parties of interest. It is voluntary. Discussion is structured in a way that looks similar to the court. After evidence is presented by both parties, principles, those empowered to make agreements, meet along to consider what they heard. Then a decision is hopefully reached among the principles. The whole process is managed by a neutral third party.

We should employ techniques which help parties to talk directly with one another. This is done to encourage parties to own both the problem and the eventual solutions. In the long run, shared ownership means that the solutions are more likely to be durable. It also means that the solutions are likely to be better technical solutions and, a range of alternative techniques exist to achieve this end.

5. SIMILARITIES AND DIFFERENCES IN TECHNIQUES: THE BLURRING OF ADR AND PARTICIPATION

Figure 9, from Carpenter, describes how the distinctions between participation and ADR/CM techniques have become blurred. Looking at the Figure 8, participation usually refers to techniques to the left side of the continuum. As we move further to the right, the techniques become more explicitly CM. The gray and overlapping areas, in the middle, are referred to as consultation techniques. Here we see facilitation and

mediation or what others have generally called assisted negotiations. These techniques are built on the similar notions that by separating process and content you can more easily reach solutions.

Public Participation →			
← Conflict Resolution			
Goal of Approaches	Basic Communication	Consultation	Consensus
Examples of Approaches	· Poll · Survey · Questionnaire · Public meeting	· Dialogue · Workshop · Advisory group	· Roundtable · Collaborative problem solving · Negotiation · Mediation

Figure 9. The blurring of public participation and conflict resolution roles.

Figure 10 offers another way to look at the relationship of participation techniques. So as you move from simply seeking to provide knowledge about decisions to forming and agreeing to decisions you would also look to techniques that move away from public information to joint decision-making, It is these joint decision-making techniques that are often referred to as ADR/CM technique.

The important point is that the appropriate technique should be employed for the level of influence and the expected behavior. One of the worst events in participation is to apply one level of technique, such as public hearings, and expect that another level of behavior, agreeing to decision, will occur.

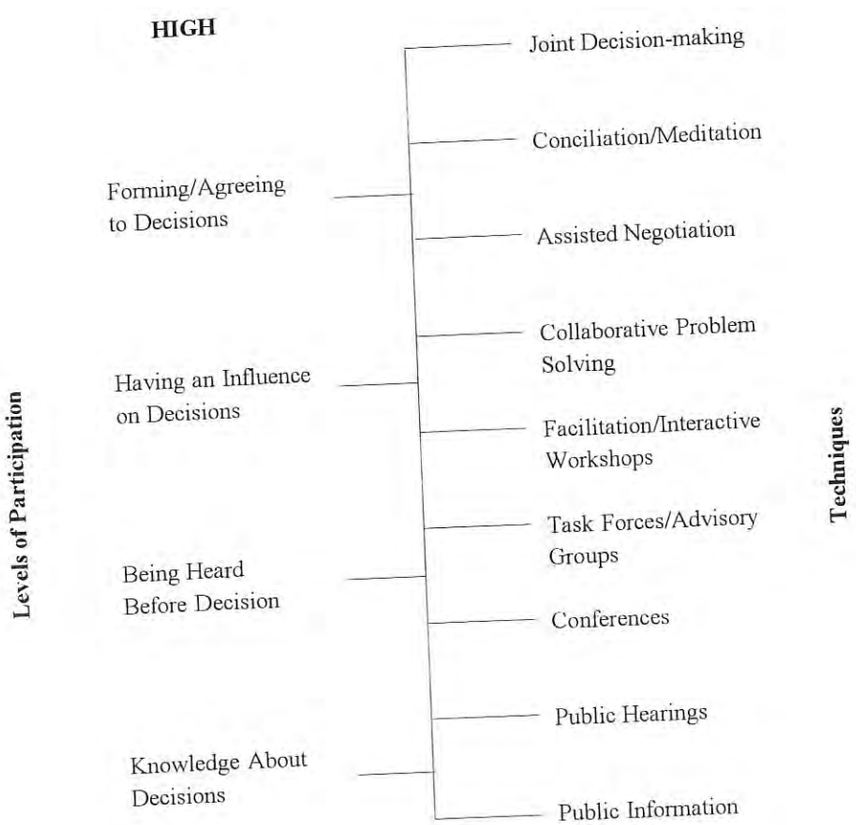

Figure 10. Public Involvement and Conflict Management Techniques (From Craighton 1986).

6. SOME CURRENT TRENDS CAUSING THE DISTINCTIONS TO BLUR

In the end, ADR/CM and participation techniques are trying to make the democratic and representative systems work better. They are doing this in a world that senses a decreasing natural resources pie, and which is experiencing more and new value demands on those natural resources. Evidence of increased polarization and gridlock in government is around us. Reinventing government has become a dominant in the US. (Carpenter 1996) There are a variety of trends and challenges which are causing the distinction between participation and ADR/CM to blur. Her are a few[3].

To negotiate the greay areas between administration and legislation

Traditionally in the U.S., we have seen a separation between the political, usually viewed as legislative majority voting, and the executive agencies of government4. When confronted with complex decisions, however, this distinction breaks down. Often it is not until the implementation or administration of general laws that the distribution of impacts become clear. As political scientist Harold Lasswell says, politics is "who gets what, when and how"5. In many cases, the "what" and "when" become apparent only in implementation. Thus, administrators of technical agencies begin to appear as the bestowers or deniers of political benefits, and people ask, "Who elected you"? Many who encourage public participation in the administrative process are asked, "Are you trying to replace the legitimate representatives of government with some new and less accountable form of government"? This is an old debate in the U.S., especially since the New Deal.

Robert Reich describes two paradigms which have guided attempts to deal with the technical and political: intermediating interest groups and maximizing net profits6. While both have their place, he goes on to call for a new paradigm of public deliberation which leads to civic discovery. This call reflects the chief goals of public participation: to foster deliberation, to encourage social learning, to create new alternatives, and to build or enhance through empowering experiences the civic infrastructure.

Ecological, natural resources, and infrastructure-related legislation of the 1970s and 1980s included a litany of impact assessment requirements for such issues as social impact, community impact, risk, and environmental impact. They recognized that traditional decision-making processes somehow did not include significant and appropriate values. Unfortunately, many have come to see even these kinds of impact assessments in purely technical, rational, and value-free terms. The truth is that most impact assessments fall somewhere between the clearly technical and clearly political. Essentially we are seeking the reasonable, not just the rational. While the rational may be a necessity, it is not a sufficient condition for implementable alternatives.

A U.S. study, done by the Kettering Foundation, finds that two systems of participation, formal and informal, seem to be emerging in the United States. Participation in the formal system of voting is decreasing, while participation is increasing in informal activities on decisions of community or regional development or with significant environmental impact. The study concludes that the problem is not to bring the informal to the formal. In other words, people are eager to participate in decisions that will affect their lives, but they often are unaware of what decisions are being taken or how they will be affected until administrative implementation is upon them. This first challenge leads us to find ways to manage this gray area between the technical and political and to provide representative participation in such technical administrative decisions.

In the United States, there were several attempts during the 1980s to deal with the separation of the legislative, political, and executive administration. Regulatory negotiations (Reg-Negs) bring stakeholders together *before* the technical/administrative agencies promulgate regulations based on legislation. Policy dialogues bring stakeholders together to generate areas of agreement and/or disagreement and options

which then affect eventual legislative debate. Legislation has been passed to encourage regulatory negotiations (Reg-Negs) in the United States. Dialogues, Reg-Negs, and other approaches continue. But so does the stalemate between the legislative and the executive.

To cope with growing transformation of tradition boundaries

A second challenge, especially prominent environmental and natural resources areas, stems from the frequent discontinuity between geographical and jurisdictional boundaries. Neither effluent from waste facilities nor polluted groundwater can be contained within traditional jurisdictions, nor can the problems they create be solved by members of one jurisdiction: resources are spread across state, local, federal and even national boundaries. Throughout the world, such issues will increasingly drive political and international decisions. But organizations and institutions built on traditional jurisdictional boundaries seem deadlocked by the NIMBY (not-in-my-backyard) syndrome.

Public participation processes often become a driving force for the vertical (state, local and regional) as well as the horizontal (across agency) negotiation vital to decisions that do not fit traditional jurisdictional boundaries.

This is also clear in the long history of river basin planning throughout the U.S. and the world. In the U.S., droughts in humid as well as arid areas are spawning water wars, such as those between Georgia and Alabama, in Louisiana, on the Missouri and Colorado rivers, and in other areas. Each of these cases brings a regional logic, forced by participation from the grassroots level, to strongly felt local needs. Essentially, public participation confronts us with the notion of shared ownership in decisions.

At the international level, the practice of public participation and ADR/CM blend with the theory of affinity groups proposed by John Burton in his international relations theory.[7] New publics are demanding new institutional forms for negotiation which often cross traditional jurisdictional and/or national boundaries. The issues themselves are also spawning new affinity groups, such as environmental groups, which cross those boundaries. The influence of such cross-jurisdictional groups could become important in certain regions. Examples abound in Eastern and Central Europe, where we have seen how grassroots/non-governmental organizations (NGOs) and environmental groups can transform old institutions[8].

International law does not have strong sanctions in the traditional nation-state system. However, there is increasing need for joint problem solving and decision sharing on trans-boundary resource issues. The growing functional necessities presented by technological decisions could generate demands for more participation in decisions. This participation itself could begin to transform our political institutions and structures.

For example, towns along the border of Slovakia and Hungary recently initiated a series of joint meetings to discern pollution sources and to devise remediation actions. These meetings among Slovaks and Hungarians, held in politically charged atmosphere of ethnic competition, produced cooperative agreements that went beyond the immediate public health issues. Slovaks and Hungarians succeed in convincing their respective national governments to create the first open-access foot bridge to cross the frontier between these two countries[9].

To help democraticize Third World development

Public participation and ADR/CM are also emerging as important in the Third World. For example, the World Bank, which lends money to governments for development projects, is now examining how stakeholder participation could enhance institutional sustainability in selected cases across the world. Preliminary information indicates that the high failure rate of many projects can be reduced and performance enhanced through meaningful stakeholder participation in their design and implementation. One internal World Bank evaluation of 42 bank-financed irrigation projects concluded that economic returns were consistently higher for those projects which involved farmers in planning and management. Another 1990 U.S. Agency for International Development (USAID) study of 52 projects of different types showed a positive correlation between participation and project success. An ongoing study of 110 completed rural water supply projects under the United Nations Development Program (UNDP)/World Bank Water and Sanitation Program is also affirming such findings. A key message of the World Bank's 1992 World Development Report is that "local participation in setting and implementing environmental policies and investments will yield high returns"[10].

The World Bank, funded by the Swedish Development Agency, has engaged in a "learning process" on participation. One result is that the World Bank has begun a training program in participatory development for its task managers. It has produced numerous support papers that are rich with participatory development for its task managers. It has produced numerous support papers that are rich with participatory experiences. They have collected in *The World Bank Participation Sourcebook*[11], which supports a new policy statement on participation signed by the World Bank's president. The Eorld Bank also has produced a new Policy on Information Access and Disclosure and is beginning to address the problems of participation in cross-sectoral, country assessment or policy development. In fact, such requirements are part of its Water Resources Assessment Policy. At the same time, the European Bank for Reconstruction and Development (EBRD) is producing a guide to participation in environmental assessments.

UNDP, UNICEF, and the Food and Agriculture Organization (FAO), among others in the United Nations' system, have been major proponents of participation. Since 1980, FAO has promoted its people's participation program. Donors and lenders are examining ways to reach the poor more directly through the support of intermediary institutions and NGOs. USAID, which gave considerable groundbreaking support to participatory development in the 1970s and early 1980s, has begun participatory forum, where AID professionals exchange views about participation. A variety of participation newsletters and electronic networks have also emerged throughout the world, such as the new International Network on Participatory Irrigation Management and the International Association of Public Participation Practitioners' newsletter.

Good governance (the rules and means by which decisions are made) is now recognized as a crucial element in technical performance. Experience supports the notion that building a civic infrastructure can be an important result of citizens participating in what are traditionally viewed as technical programs. In effect, the search for development ha sled us back to the pragmatic fundamentals of creating participatory experience and civic culture.

To transform bureaucratic cultures: public, private, and non-profit

A fourth challenge concerns the decision-making style of professional and technical natural resources agencies. Frequently, the traditional style is to decide, to inform the client community, and then to justify a decision; in other words, DAD: decide-announce-defend. This process is increasingly being replaced by another model in which the participants jointly share information, diagnose the problem, reach an agreement about a solution, and implement it. The decide-announce-defend approach usually builds on a paternalistic (albeit often nobly motivated) professional ethic. That is, the professional, like father, knows best. The professional formulates alternatives or determines options, and then, for the good of society, informs the public and thereby justifies those decisions.

However, the ethical basis of such professionalism is changing. For example, few of us go to the doctor and say, "Heal me". Instead, we participate in the diagnosis as well as in the health process itself. So, too, when we turn to traditional, technical, and governmental agencies, we must find new ways to jointly diagnose problems, to decide on plans of action, and to implement them. The new notion of professionalism is driven by an ethic of informed consent as opposed to one of paternalism. The challenge calls us to create ways for participation processes to pervade hierarchy. It also must address the legitimate concerns of professionals who exclaim, "There are not standards left, anything goes"! It is not that society wants to jettison professional technical expertise and enter a new age of irrationalism. Far from it - we need the expertise. But a new relationship among experts and those whom they serve must be established to liberate this expertise.

Participation has been and continues to be a catalyst for organizational change. Two of the best recent examples in the U.S. are from the Bonneville Power Administration (BPA) in the Pacific Northwest and the recent managerial changes in the Tennessee Valley Authority (TVA). For example, by opening up its decision-making processes to the full range of its publics, including its severest critics, BPA's solutions to Northwest energy problems became more innovative. It relied less on traditional engineering solutions, and engineers were rewarded for saving money and energy, not just for building bigger and better transmission lines.

Organizations and agencies cannot do participation with external constituencies without becoming more participatory internally. To start, simply talking about public participation can encourage a transformation. Actually doing public participation over a period of time will precipitate either the transformation of internal values or a major debate about such values. And internal cultural norms ultimately will be affected by agency actions outside its building.

To understand and help decisionmakers deal with ethical dilemmas

When is the decision *not* to decide a greater evil than to decide and possibly to incur unexpected negative effects? Meaningful participation and ADR/CM processes often bring both decision-makers and participants into a new awareness of this ethical reality. Lack of participation or non-meaningful participation can allow stakeholders the luxury of negative "nay-saying" without confronting the reality of decisionmaking pressures - and that is dangerous. Admittedly, getting the public in touch with such

realities, which often are described in obscure and esoteric language, is difficult. But we must.

Nowhere is this dilemma clearer than in natural resources and ecological decision-making. There was a time when some environmentalist were saying "no" to a lot of developments, using the environmental impact statement to do that, as a way to make people stop and think about the damage those developments were doing. For a time, society needed a shock - an instrument to make us stop and take notice, and the EIS was that blunt instrument. At the time, it was sufficient simply to stop the action. Now, however, people are demanding that developments go forward, but in a sound ecological manner, and they are thinking about environmentally sound ways to meet a need, not simply about how to build a better dam or to compensate later for its damage.

Participation and ADR/CM are tools to encourage the dialogue about such difficult choices among decisionmakers and the public.

To create and actively choose futures

We have not one but many possible ecological futures. We are now confronted with the need for and the awareness of our responsibility and accountability to actively choose our environmental future. I think our growing consciousness of this choice is at the root of our anxiety over the future, more than even our doomsday visions.

Our need to choose our future leads us right to participation and ADR/CM. The challenge of environmental design is the co-creation of our ecological future. We already see this in new programs that engage in proactive ecological design, such as environmental restoration and wetland construction. This is similar to what Lewis in his book, *Green Delusions: An Environmentalist's Critique of Radical Environmentalism*, calls the adoption of a Promethean Environmental Archetype (which leads to proactive environmental design) and rejection of an Arcadian Archetype (which leads to passive preservationism), to fuel our search for sustainability.[12] It is close to what Easterbrook calls Environmental Optimism"[13].

In the end, our increased environmental knowledge has brought us to a major point in the evolution of consciousness. We humans are coming to understand that we are co-creators of, and participants in, our own evolution. We are in and of nature, not separate from it. In some way, we are reflective consciousness in nature. By forcing us to experience multiple view points, each often couched in the certainty of pedigreed science, public involvement has been a vehicle to bring us to such realizations.

Caught between an apocalyptic pessimism for earth and an optimistic hope for a savior technology, many people nevertheless express fear of the future. Indeed, our fixation on the short term could be a collective avoidance. However, the fear of the future could stem from another source of anxiety deep in our collective subconscious. That source might be the awesome responsibility stemming from realizing that we are co-designing our ecology, whether by explicit choice, non-choice or avoidance. Built on a democratic faith, public participation will not let us run from this collective responsibility. In classical theory, democracy is defended because citizens participate in decisions that affect their lives, and this experience will educate and build responsibility among citizens. What issues could be more important and affect us more than designing our future?

To help give voice to the voiceless

This challenge can be presented as a question: "What about those who are likely to be affected but do not (and will not) know until the impacts are present?" Unresolved variants of this question are at the heart of much debate over participation within international development organizations. When such organizations look to participation, who are the public? Does the international organization go beyond the established state and develop special relations with NGOs? Can it? If it does, what happens to its espoused technical role, as it becomes viewed as a political change agent? Participation in this context leads us rapidly to ethical dilemmas which then bring us to debate the purpose of development assistance.

This questions is also important in the U.S. A new U.S. study finds that

> ...those[14] who already have economic clout are involved in politics in ways that disproportionately increase their influence, making the practice of democracy increasingly biased against the economically disadvantaged.

To See Participation in Decisions About the Physical Infrastructure as Reinforcing the Civic Infrastructure

Public participation in physical infrastructure projects can be used to reinforce the civic infrastructure projects can be used to reinforce the civic infrastructure. As Thomas Jefferson once noted, the great engine of democracy is responsibility. Citizen responsibility is enhanced when citizens meaningfully participate in making the decisions that affect their lives. They take responsibility for tradeoffs. Such experience becomes a powerful means to educate and to inform - both prerequisites for democratic political culture.

Actually, we could view technical decisions on infrastructure, engineering, and environmental problems as opportunities for building democracy. Such decisions confront us with new experiences, new knowledge, and new information needs. By increasing citizen participation in what have been viewed as technical decisions, we may, in effect, strengthen those elements of the civic infrastructure so critical to democratic decision-making. Public participation builds on a classical notion in democratic theory: that those citizens who are affected by decisions should have a say in decisions which affect their lives because they will become better citizens[15]. And it is often the physical infrastructure and environmental projects that citizens see directly affecting their lives.

To go beyond the impact assessment fixation

Public participation has taught us the need to move beyond an "impact fixation" and to get participation early in the decision-making process. For example, environmental impact assessment has attracted much public attention to high technology decisions. However, the impact assessment stage is often so late in the development process that the public can only participate in discussion of how to mitigate the damages of options already chosen. the public must be involved in the diagnosis and option-generation stages of decisions, as well as the impact assessment. Public participation also brings alternative values into the design configuration stages.

Getting the public to participate in planning is difficult. Planning often appears

esoteric, and sometimes it is unclear which decisions planners are asking people to participate in. Will the plan be presented to a decision-maker at a future date? Some experience indicates that it is easier to involve people in issues which they can see immediately affect their lives. For example, it is easier to generate public participation in regulatory decisions about the short-term issuing of a permit. In such cases, people can understand the decisions and see their immediate impact and consequences. This experience, however, begs the question of whether public participation enhances our capacity to deal with long-term achieved in alterative futures planning, but it requires considerable design and facilitation effort[16].

In many regions, natural resources issues, now confront industrialized nations with the politics of redistribution versus the more traditional politics of distribution. A critical question is how to reallocate uses to meet new demographics within an established system of rights. But it is not clear how to foster stakeholder participation in major decisions over realignments in social structure, such as reallocations of water between agricultural and municipal uses. Powerful bureaucratic structures have been created around these uses and are hard to change.

To put technology in service of participation

Technology is more than inanimate machines or abstract programs - it is us. It is also closely intertwined with bureaucracy. We both produce and are a product of our technology. Technology in its broadest sense is what defines our civilization. We must find better ways to put that which we do - technology - into service of that in which we say we believe - democratic participation. For many years, when we brought computers into the participation process, we soon found ourselves marching to the agenda of the machine and not vice versa. But new advances in interactive software, object-oriented programming, decision support systems, geographic information systems (GIS), and others are changing that reality.

For example, in the national drought study in the U.S., an interactive software called STELLA is being used. It allows stakeholders to jointly create (in real time) descriptions of water systems. In essence, the software allows stakeholders to use icons on a computer screen as a single-text negotiating device.

STELLA is just one example of the many technological aids to participation. When we think of satellite links and other communication advances, the possibilities for using technology to improve participation are boundless.

To meet the challenge of the market

Frequently people suggest that the Market is the most efficient public participation and/or ADR/CM strategies/strategy. They see it as the primary alternative to bureaucracy. they say that people can show their preferences by where they spend their money, or with boycotts of companies they consider irresponsible. Without lengthy theoretical discussion of equities and social distribution, a few notions should be mentioned. Markets also can create the illusion of efficiency while hiding social costs. For example, water resource experts commenting on the use of water in the western U.S. have noted that major environmental values and interests of smaller communities may be ignored in the process of using markets for facilitating reallocation of water supply,

such as when cheap agricultural water is sold to urban utilities willing to pay higher prices[17]. Thus, mediating institutions are often needed to facilitate the working of such markets. Thinking of markets as a public participation tool also raises the question of how those who will be affected, but do not know it, will participate. While markets could clearly play a greater role in problems frequently addressed by participation, they are not the total solution.

7. CONCLUSIONS

These trends raise a number of issues for practitioners of ADR/CM and participation. Defining success has become more difficult. Is it to get a project done? Once many thought that the less substantive knowledge possessed by the neutral was best. But today many feel differently. It can be positive for the neutral to understand the substance. However, substantive knowledge also brings opinions and values and raises question of how much advocacy should a neutral possess?

Those who control the process, and pay, become critical to accountability and the definition of success. New ethical question have emerged. What is the role of the neutral regarding situations of greater disparity of power? How much activist use of power should the mediator use, especially those with resources? What does malpractice mean? In the end, does it matter what we call the process: ADR, CM or participation[18]?

In many US agencies we are finding that the publics are more sophisticated and demanding. Employees are not asking whether they should do participation but how and what are best practices. The interpretation of the public has expanded beyond those who might be impacted by a planned project and interest groups in a regions. There is a new sensitivity to involving local political leaders and other elected officials as well as administrators. There is more interest in dealing explicitly with internal (to the agency) publics.

The scope of participation activities has also expanded. It now includes clean up of facilities restoration and wetland construction, multipurpose water resources operations and even military base operations and construction.

Technology is influencing ADR/CM and participation. New software is making real time joint model building among stakeholders possible. Satellite data is broadening the sharing and interpreting of information.

From the perspective of management, training and especially joint training among stakeholders in ADR/CM and participatory techniques is a powerful tool for change. However, leadership rather than regulation or dictates is still the best way to get adoption of these ideas within agencies.

But in the end what does all this mean about the business of natural resources decision-making? What has the Environmental value challenge and its ensuing conflicts mean? What are we learning?

I think that our consciousness about environment has been raised through devices such as the EIS. However, we are now moving beyond the impact fixation. It is not enough to stop things, we are struggling with what progress means in the context of our

new found awareness of environment. In short we are now confronted with the reality that we are co-designing our Ecology. We cannot escape from this. However, the sense of responsibility for actively forming, as opposed to passively accepting, the future is still latent in much of society. I felt hat it is generating a deep fear/anxiety on the future. After all who wants to accept such responsibility for a role that sounds like we are playing God? Through ADR/CM and participation techniques, environmental conflicts are bringing such fear and anxiety to the surface. They are setting the stage for a more conscious sense that we are entering a new era of Ecological design.

NOTES

1. For fuller description of material in this article please see: "Twelve Challenges for Public Participation Practice," in Interact, Vol 1. Number 1, Fall 1995, pp.77. and, "Public Participation in Designing Our Environmental Future," Working Paper #7 of the US Army Corps of Engineers, Alternative Dispute Resolution Series, IWR Working Paper 96-ADR-WP-7, and, "Public Involvement; Conflict Management: and Dispute Resolution in Water Resources and Environmental Decision Making," of the US Army Corps of Engineers Alternative Dispute Respoultioin Series, Working Paper #2, IWR Working Paper 90-ADR-WP-2.
2. Interaction, Vol 1, Number 2, Summer 1995.
3. Delli Priscoli, 1996
4. Fore review of the debate over representativeness of administration, see: Jerome Delli Priscoli. *Public Participation in Regional-Intergovernmental Water resources Planning:* Conceptual Frameworks and Comparative Case Studies. Ph. D. Dissertation, Georgetown University, Washington, D.C., 1975, p. 549.
5. Harold Laswell. *Polotics: Who gets What, When and How.* Median Books, Cleveland, 1958.
6. Robert Reich. "Policy Making in a Democracy", in *The Power of public Ideas*, Robert B. Reich, editor. Harvard University Press, Cambridge, 1990, p. 125.
7. Harwood Group. *Citizens and Politics: A view from Main Street*. Charles F. Kettering Foundation, Dayton, Ohio, June 1991.
8. John W. Burton. *The History and Present State of Conflict Resolution.* Paper presented to the Council for the Facilitation of International Conflict Resolution, University of Maryland, June 18, 1984.
9. For a review, see: D. Fisher and C. Davis. *Civil Society and the Environment in Central and Eastern Europe*. The Ecological Studies Institute, London, May 1992.
10. This example was reported in the annual program of Partners for Democratic Change, which is located in San Francisco, CA. Its title was "Conflict prevention conference on common drinking water supply of Satoraljuajhely, May 25-27, 1994"; it was carried out by the National Conflict Resolution Centers in Slovakia and Hungary.

11. From "Interim Report on Progress of the Bank' Participation Learning Group" (Draft). External Affairs, World Bank, Washington, D.C. 1992.
12. *The World Bank Participation Sourcebook* (Final Draft). Environmental Department, World Bank, Washington, D.C. May 1995.
13. In the Introduction to: Martin Lewis. *Green Delusions: An Environmentalist's Critique of Radical Environmentalism*. Duke University Press, Durham, NC, 1992.
14. Gregg Easterbrook. *A Moment on the Earth: The Coming Age of Environmental Optimism*. Viking Press, New York, NY, 1995.
15. Op. cit. *The World Bank Participation Sourcebook.*
16. *The Citizen Participation Project*. Quoted by Lynne Dulce in the Washington *Post*, October 8, 1992, p. A25.
17. Jerome Delli Priscoli. "Conflict Resolution in Water Resources: Two 404 General Permits." *Journal of Water Resources Planning and Management*, Vol. 1154, No. 1, January 1988, pp. 66-77.
18. Note: Susan Carpenter, "The Blurring of Roles Between Public Participation and Conflict Resolution Practitioners," in Interact, Vol. 1. Number 1, Fall 1995, p. 37.

REFERENCES

Axelrod, R. 1984. The Evolution of Cooperation. Basic Books, Inc., New York, N.Y.

Bingham, G. 1986. Resolving Environmental Disputes. The Conservation Foundation, Washington, D.C.

Carpenter, S. "The Blurring of Roles Between Public Participation and Conflict Resolution Practitioners." in Interact. Fall 1995.

Coser, L. 1959. The Functions of Social Conflict. Free Press, New York, N.Y.

Creighton, J. 1986. Managing Conflict in Public Involvement Settings: Training Manual for Bonneville Power Administration. Creighton and Creighton, Palo Alto, Calif.

Creighton, Jr., Priscoli, J.D. and Dunning, C.M. 1983. "Public Involvement Techniques: A Reader Of Ten Years Experiences at the Institute of Water Resources." IWR Research Report 87-R-1, U.S. Corps of Engineers, Institute for Water Resources, Ft. Belvoir, Va.

Dunning, C.M. 1986. "Collaborative Problem Solving for Installation Planning and Decision Making." Report 86-R-6. U.S. Corps of Engineers, institute for Water Resources, Ft. Belvoir, Va.

Fisher, R., and Ury, W. 1981. Getting to Yes. Houghton Miffling Co., Boston, Mass. International Association for Public Participation, Interact, "Current and Emerging Trends in Public Participation," Vol 1, Number 1, Fall 1995.

Lincoln, W.F. 1986. The Course in Collaborative Negotiations. National Center Associates, Inc., Tacoma, Wash.

Milbraith, L.D. 1984. Environmentalists: Vanguard for a New Society. Sunnyside Press, Albany, N.Y.

Moore, C.W. 1986. Decision making and conflict management. Center for Dispute Resolution, Denver, Colo.

Negotiating, Bargaining and Conflict Management Training Manual. 1986. Huntsville Division, U.S. Corps of Engineers, Huntsville, Ala.

Priscoli, J.D. 1975. "Citizen Advisory Groups and Conflict Resolution in Regional Water Resources Planning." Water Resource Bulletin, AWRA, II(6), 1233-1243.

Priscoli, J.D. 1983. "Retraining the Modern Civil Engineer." *The Environmentalist* 3(2): 137-146.

Priscoli, J.D. 1987a. "Enduring Myths of Public Involvement." Citizen Participation, Spring, Lincoln Filene Center, Tufts University, Medford, Mass.

Priscoli, J.D. 1987b. "Water as a Political and Social Tool." Water for Human Consumption: Man and His Environment. Tycooly International, Publishing Ltd., Dublin, Ireland.

Priscoli, J.D. 1996. "Public Participation in Designing Our Environmental Futrue "Alternative Dispute Resolution Series, Working Paper #7, IWR Working Paper 96-ADR-WP-7.

Priscoli, J.D. 1990. "Public Involvement: Conflict Management: and Dispute Resolution in Water Resources and Environmental Decision Making" Alternative Dispute Resolution Series, Working Paper #2, IWR Working Paper 90-ADR-WP-2.

Raifa, H. 1982. The Art and Science of Negotiation. Belknap Press, Cambridge, Mass.

Susskind, L., and McMahon, G. 1985. The Theory and Practice of Negotiated Rulemaking. *Yale J. on Regulation* 3(133): 132-165.

Vlachos, E. 1988. "The International Workshop on Water Awareness in Society Policy and Decision Making," Skokloster, Stockholm, Sweden.

TIMBER CERTIFICATION: A TOOL FOR PUBLIC PARTICIPATION AND CONFLICT MANAGEMENT IN FORESTRY?

Chris Elliott
WWF International
Switzerland

ABSTRACT

This paper briefly reviews some of the kinds of conflicts that have occurred in forestry. It discusses recent international developments in forest policy and then presents timber certification as a possible tool for conflict management. Two examples of how certification has been used to address conflicts are discussed.

Key words: Certification, conservation, conflict

1. INTRODUCTION

Humanity has always had a complex relationships to forests. Conflicts have been recorded since writing was first invented. These can be classified into three types: conflicts between humanity and forests, conflicts between forest users, and conflicts between forest users and urban dwellers about what is, or should be, happening in forests.

The oldest known literary work, the Epic of Gilgamesh, describes the adventures of Gilgamesh, a Sumerian king who lived around 2700 B.C. He made a "forest journey" outside his city walls to the Cedar Mountain to slay the forest's guardian, Huwawa. The epic has been interpreted both as an account of a search for timber, which was a precious commodity for the Sumerians because even at that time the spread of agriculture in Mesopotamia had resulted in forest depletion, and as an account of the destruction of the Cedar forests of Lebanon. It has also been seen as a description of an attempt of man to control nature.

> "If Gilgamesh resolves to kill the forest demon, or to deforest the Cedar Mountain, it is because forests represent the quintessence of what lies beyond the walls of the city, namely the earth in its enduring transcendence" (Harrison 1992:17).

Birger Solberg and Saija Miina (eds.)
Conflict Management and Public Participation in Land Management
EFI Proceedings No.14, 1997

With the development of agriculture and settlements, there were less conflicts between humanity and forests, and more conflicts between humans about forest use.

Some authors have traced the origin of the modern concept of conservation (stewardship of natural resources) to these conflicts. As noted by Glacken (1965), writing about the Middle Ages:

> "The forests of Europe were related intimately to both the economics and the amenities of life, and there were conflicts of interest in using them. The most obvious-and the one that has been emphasised in modern times-was the indirect conservation of forests because they were royal or noble hunting reserves ... Forests were also grazing lands ... It was the complex role of the forest: in the economy which brought about laws and regulations governing the uses of forests in every European country... The practice of transhumance often meant clearance of forest lands to increase mountain pastures at the expense of trees. There were conflicts too between farmer and herder in the width and use of sheep runs through agricultural land. Another explanation for the growth of the conservation idea is thus to be sought in conflicts of interest with regard to use."

Specific mechanisms were established to regulate use and manage conflicts:

> "Wooded commons... belonged to a landowner, usually the lord of the manor; but the right to use them belonged to commoners who were the occupiers of particular properties. Usually the grazing belonged to the commoners and the soil (including mineral rights) to the lord. The trees might belong to either: often timber belonged to the lord, and wood... to commoners (not necessarily the same persons as those that had the grazing). By the Middle Ages such rights already dated from time immemorial. They were administered, and could be revised, by the manorial courts, which were composed mainly of the commoners Themselves and were seldom unduly favourable to the lord's interests." (Rackham 1986:121)

2. FORESTRY ON THE INTERNATIONAL AGENDA

Turning now to the present, today we seem to be witnessing an increasing number of conflicts about forest use around the world. The mechanisms we have to resolve these do not always appear adequate. The conservation of forests has attracted increasing international attention from the public and policy-makers in the last decade. Concern focused initially on tropical forests but since the United Nations Conference on Environment and Development (UNCED) in 1992, the forests of the temperate and boreal zone have also been the focus of discussions. The main issues have been deforestation and loss of old growth forests, threats to biodiversity and ecological functions and the rights of indigenous people. Most forest lands which are cleared end up being used in agriculture, but the causes and mechanisms of deforestation are complex and sometimes controversial. The timber industry has often been criticised by conservationists for its role in forest destruction.

This concern has led to new mechanisms being established in the mid-1980s to provide international assistance for tropical forests: the Tropical Forestry Action Programme (TFAP) and the International Tropical Timber Organisation (ITTO). Forests were an important agenda item at UNCED, although no agreement was reached on an international convention on forests. International collaboration on temperate and boreal forests has also increased with initiatives such as the Ministerial Conference on the Protection of Forests in Europe held in June, 1993.

Despite these efforts FAO statistics show that deforestation rates in the tropics have increased from 11.3 million ha in 1980 to 15.4 million ha in 1990 (FAO 1995). At current rates 0.8% of tropical forests are being lost each year on average. At a regional level the highest rates are found in South East Asia (1.3% in insular zones and 1.6% in continental areas). The social, ecological and economic costs deforestation are not easily quantifiable, but in some areas they are clearly substantial. For example Thailand, traditionally a timber exporting nation, had by 1992 become the world's largest importer of tropical sawnwood.

In most temperate nations, the area of forests is stable or even expanding, but conservationists have argued that the "quality" of forests has declined with old-growth forests being increasingly replaced by plantations in regions ranging from Chile to Canada. This has had a variety of impacts, including affecting biodiversity: in Sweden over 300 forest living species are considered threatened in part because of forestry activities. Forest decline (which has been a major issue of concern in Europe since the 1980s) affects over a quarter of broadleaved trees in Europe and more that 10% of conifers.

The fact that the situation concerning forest conservation on the ground has worsened in many countries despite increased international attention and assistance, has led to questions being raised about the approaches used. For example, the doubling of international development assistance funding in the forest sector from 1985 to 1990, associated with the TFAP, has been subjected to scrutiny and criticism by NGOs and some sections of the media for not producing the desired results.

A recent International Tropical Timber organisation (ITTO) review noted that:

> "Evidently, measures carried out to ensure the sustainability of forest management are not adequate or effective... The inability in many countries to correct the policy failures in the forestry and related sectors is one of the reasons why environmental concerns have been channelled to timber certification initiatives" (ITTO 1994).

Traditionally in most countries, policies concerning forestry or the environment are formulated by the government. The role of NGOs and the private sector has been to seek to influence the development and implementation of policy by the government. More recently, there appears to be a tendency in some areas for the private sector and NGOs to look for policy instruments (such as certification) and concepts (such as forest quality) which they have a more active role in developing and implementing. This sometimes involves collaboration between NGOs and the private sector, with the government taking a monitoring and supporting role.

In the private sector, this development in the environmental field follows a similar path to what has happened in the social field, particularly in the US, where large

corporations have developed their own policies on employment of ethnic "minorities", investments in South Africa etc. beginning in the 1970s. A further trend in some countries is for individuals who are interested in particular environmental or social issues to modify their consumption patterns to promote certain objectives (e.g. boycott of tropical timber, using public transport). This has been actively encouraged by some NGOs.

3. THE EVOLUTION OF TIMBER CERTIFICATION

Timber certification has developed alongside a growing trend for "ecolabelling" of consumer products. It attempts to link "green consumers" to producers who are seeking to improve their forest management practices and obtain better market access and higher revenue, by providing an independent assessment of forest management operations.

Certification is currently carried out by NGOs and by private companies, some operating nationally, others internationally. Assessments are based on specified social, ecological, and economic criteria.

The so-called "soft policy tools", like certification, cannot replace tools such as national forest policy, legislation, and education. Timber certification only affects the forest management unit and thus cannot directly influence landuse planning and national policy. Nevertheless, as more and more industrialised country consumers profess a preference for "environmentally friendly" products, certification plays an important complementary role and may, if successful, help shape policies.

Definition. Timber certification can be defined as a process which results in a written certificate being produced by an independent third party attesting to the location and management status of the forest in which the timber originated.

There are normally two components:

1. Certification of forest management or forest auditing. This involves inspection of forest management on the ground against specified standards and review of documents such as management plans, inventories etc. Certification of forest management can potentially be carried out at different levels: forest management unit, forest owner, region, or country. Existing certification programmes work at the level of the management unit.
2. Product certification. If certification is to influence a consumer's purchasing choice, the certifying process must follow an item throughout its entire production process, from forest to shop-floor. Certification therefore applies to a whole "chain-of-custody", which involves log transport and processing, shipping and further processing.

The aims. Certification has two main objectives:

- objective 1: to improve forest management
- objective 2: to ensure market access for certified timber

A number of secondary objectives have been identified, including increasing transparency in the forest sector and addressing conflicts about forest use.

4. THE FOREST STEWARDSHIP COUNCIL

Until recently, the growing interest in certification and the proliferation of labelling schemes threatened to confuse both producers and consumers. However, in an effort to validate the claims of the certifiers and to avoid confusion, a diverse group of representatives from environmental organisations, foresters, timber traders, indigenous people's organisations, community forest associations, and forest product certification institutions have come together to establish an organisation known as the Forest Stewardship Council (FSC).

The FSC supports environmentally appropriate, socially beneficial, and economically viable management of the world's forests. It seeks to achieve a balance between social, ecological, and economic interests in forest management, and aims to promote good forest management by evaluating and accrediting certifiers, by encouraging the development of national standards for forest management, and through training and education.

An increasing number of forest certification bodies are currently in operation, some of them non-profit non-governmental organisations, the others for-profit, commercial institutions. Currently some 3.5 million cubic metres of certified timber enter the international trade each year, up from 1.5 million in 1994.

The four certifiers accredited by FSC are:

- Forest Conservation Programme of Scientific Certification Systems (For-profit, USA)
- Smart Wood Certification Programme of the Rainforest Alliance (NGO, USA)
- Woodmark of the Soil Association (NGO, UK)
- SGS Qualifor (For-profit, UK)

All these schemes have their own standards for use in forest auditing. NGO programmes tend to stress forest conservation community development while the for-profit certifiers concentrate on the marketing benefits offered by a label. All the schemes issue pass/fail certificates. Sometimes they qualify pass certificates in some way (e.g. "well-managed" for operations which just pass and "sustainable" for exemplary operations). In addition, Scientific Certification Systems uses a scoring system in reporting.

Certification usually involves a pre-assessment of an operation. A contract is then drawn up, specifying the rights and obligations of both parties (certifier and client) and assessment is carried out by a multidisciplinary team. A certificate is then awarded for a specific period of time subject to spot-checks.

Originally promoted by conservation NGOs such as WWF and Friends of the Earth, timber certification is now attracting the attention of governments and the forest product industry. In the early 1990s, there was a marked increase in interest in certification in the industrial sector in major producer countries such as Indonesia, Sweden, Finland, and Canada. The industry in these countries are participating in one way or another in certification schemes. The African Timber organisation has been working on a regional certification scheme.

Certification has won the World Bank's approval too. The World Bank's forest policy (The World Bank 1991) notes:

"Experience with other products suggests that: consumers will modify their behaviour substantially if they are given information on the ecological sustainability of the production process. For this reason the international community should encourage organisations like the International Tropical Timber Organisation to develop programmes of green labelling to permit preferential market treatment for wood grown under sustainable circumstances. In addition to lowering the overall demand for wood produced by unsustainable practices, such a scheme would remove the disincentive for adopting improved management practices that might otherwise diminish competitiveness".

Demand for certified timber currently exceeds supply. The "WWF 1995-plus" group brings together 47 companies which have committed themselves to supporting FSC and purchasing certified timber, and to phasing out buying wood and wood products which do not come from well-managed forests. As of December 1995, members of the group hah a turnover in wood and wood products of £ 2.4 billion, in 56,000 product lines from 2,200 suppliers. 4% of total wood sales were certified. Similar developments are taking place in Holland and Belgium.

Governments of such countries as Austria, Switzerland, Canada, Finland, Indonesia and Holland are also expressing interest in independent timber certification. The Swiss and Dutch governments have commissioned studies on the establishment of national certification schemes, while the Canadian government has stated that it is "committed to the introduction of a scheme for forest products based on independent audits and against internationally agreed standards".

In Canada, the forest industry has been promoting an alternative approach to certification based on auditing the management system of the forest company, rather than the forest management performance, as required by the FSC.

5. TIMBER CERTIFICATION AND CONFLICT MANAGEMENT

5.1 Limitations of certification

Before assessing how timber certification can be used as a tool for conflict management and public participation, it is necessary to consider the limitations of certification. Certification is a tool which is intended to be applied at the site level in areas of forests managed for timber production. Certification may be able to influence how the particular forest area is managed but it is not designed to influence the prior landuse choice at the landscape level i.e.: should this area be managed for timber or should it be a national park? If the conflict is about whether a large area of old-growth forest in a particular region should be logged or protected, certification may not be the best conflict management tool.

In addition, certification has sometimes caused conflicts itself. In the UK and the US, for example, the forest industry tends to see certification as unnecessary because they feel that existing environmental legislation is adequate. They show little

enthusiasm for additional oversight by certification which they consider to be a NGO-dominated process. In Canada, there have been disputes between proponents of the FSC performance approach and the CSA management systems approach. This paper will not review these controversies. It is sufficient to note that certification, like any other tool, has its strengths and weaknesses. It is likely to be a weak tool if certification itself is highly controversial.

5.2 Elements of successful conflict management

It has been suggested that successful conflict management involves three key elements (Crowfoot and Wondolleck 1990):

1. Voluntary participation by the parties involved in the dispute;
2. Direct group interaction among the representatives of these parties; and,
3. Mutual agreement or consensus decisions by the parties on the process to be used and any settlement that may emerge.

The degree to which certification has helped conflict management in a given situation can be assessed in relation to these elements.

5.3 The Swedish FSC working group

Forestry in Sweden has been subject to numerous controversies since the 1940s over such issues as reforestation, clearcuts and the use of herbicides. The intensity of these conflicts has fluctuated over time (Hellström and Reunala 1995).

Starting in 1993 various discussions on certification have been held in Sweden at the initiative of WWF Sweden and the Swedish Society for the Conservation of Nature. These discussions have sometimes been difficult but led to the preparation of preliminary National FSC standards for Sweden in 1995, through a process involving consultations with academics and representatives of the forest industry. The draft standards are currently being tested on the ground by two large forest companies and is the subject of ongoing consultations. The standards are an adaptation to the Swedish situation of FSC Principle 6 "forest Management shall conserve biological diversity and its associated values... and by so doing, maintain the ecological functions and integrity of the forest".

Some excerpts:

"Forestry and the forest industry are vital sources of Sweden's prosperity, providing versatile and useful products. Wood is a renewable raw material of great importance for the development of a sustainable society based on natural cycles ...

6. Chemical pesticides, herbicides and other artificial toxins may not be used on forest land.
13. Predominantly coniferous forest in moist areas shall be regenerated primarily by the use of shelter trees or selective methods. On spruce locations susceptible to strong winds, clearing after felling should create a shelterwood layer of deciduous trees.

14. Minor special habitats and sufficient buffer zones adjacent to water, wetlands and habitats with special natural features shall always be left after logging. Likewise, trees valuable for biological diversity shall be left, as shall dead standing and fallen trees where natural conditions permit a total of at least 10% of the standing volume prior to logging shall be left on productive forest soil as a link between the old and the new stands.

    On average, at least 20 mature, wide girthed and windresistant trees valuable for biological diversity shall be left per hectare (in addition to sallow, rowan, bird cherry, and big juniper that must always be left) . These "biodiversity trees" shall be part of the next stand and may not be cut during later operations. In order to avoid clear areas at least 10 such trees per hectare shall be left wherever possible. An average of three coarse stumps, 2-4 meters high, shall be left to promote wood-dwelling organisms.

18. All logged areas shall be reforested with indigenous tree species. Natural regeneration shall be used in areas where it is appropriate. In all other cases, the origins of seeds and seedlings shall be documented".

(From "Preliminary Criteria for Environmental Certification of Swedish Forestry", (1995) Swedish Society for Nature Conservation and WWF Sweden).

In January 1996, the Swedish Forest Industries Association and several leading companies (AssiDomän, Graninge, Korsnäs, MoDo, SCA and STORA which together own 38% of Sweden's forests) agreed to work with Swedish environmental groups and representatives of other interest groups, including the Sami people, to prepare national standards for forest certification under the auspices of FSC. To do this it was decided to create a working group to further develop the preliminary standards. The Vice-President of the Swedish Forest Industries Association announced:

> "It is important that the Swedish forest industry and companies and environment organisations are participating on equal terms, and, along with other interests are striving in a positive spirit of mutual respect to achieve agreement ... All parties involved have assumed responsibility, and have given something, to arrive at a joint platform where work can continue within the framework of the FSC. The road ahead is still long and crooked, and there are many hard nuts to be cracked. But it will be inspiring to try to achieve a worthwhile outcome in working together with the Swedish environmental movement" (SFIA 1996).

It is too early to assess the success of the Swedish FSC working group but it does appear that the three elements for successful conflict management are present which gives cause for optimism. All groups are participating voluntarily in the working group (which is representative), and all agree that FSC national standards for certification must emerge by a consensus process.

5.4 Environmental pressure on a UK retailer

B&Q is Europe's largest chain of do-it-yourself retail stores. In this position it was a natural target for environmental groups protesting about sales of tropical timbers such as mahogany, and temperate timber from old-growth forests. After having been the

subject of demonstrations, and even bomb attacks, B&Q decided to adopt a proactive approach and make changes in their policies and practices to address the concerns of their critics. After discussions with environmental groups, B&Q decided to join WWF's 1995 group in 1991 and made a commitment to seeking certified timber and phasing out suppliers who could not provide adequate information on the origin of their timber:

> "Before then B&Q relied on supplier's claims of sustainability which were usually based on government certificates or glossy brochures produced by the timber industry. Whilst many of these claims may have been true, some clearly were not. Without an internationally agreed definition of sustainability applicable to both temperate and tropical forests backed up with independent verification, they all lacked credibility with customers. This lack of credibility was highlighted with the statistic that whilst 90% of B&Q's suppliers could not tell the company which country their timber came from, over sot stated that their sources were definitely "sustainable". B&Q realised that relying on countrywide policies and glossy brochures was not sufficient to give its staff and customers the reassurances they wanted" (Knight 1996).

B&Q's suppliers audits, the phasing out of some controversial sources of timber and their commitment in favour of independent certification, gradually earned them support from environmental groups who had previously criticised them.

Recently when B&Q were looking for new suppliers of charcoal, to replace charcoal from clearcut mangrove areas in S.E Asia, they learned of the possibility of using locally produced charcoal in the UK from coppiced woodlands. Charcoal producers, seeing a new market opportunity, formed the Bio-Regional Charcoal Company, which coordinates a network of small-scale charcoal producers throughout the UK. An initial experiment supplying 2 stores in 1994 was expanded to 30 stores in 1995 and 130 stores are planned in 1996. Research is underway to develop certification methods to certify the charcoal produced from a network of small sources.

It appears that B&Q has found that a general timber purchasing policy including certification has provided them with a framework which brings together the three elements for successful conflict management. Interactions with groups critical of B&Q have been done through voluntary meetings, and all participants appear to believe that B&Q's commitment to certification provides the basis to resolve disputes, with recourse to the FSC if an outside, independent, mediator is needed.

6. CONCLUSIONS

Certification can provide a tool for use in conflict management. Its advantages in this respect are that preconditions for successful certification include clear standards, transparent processes and independent verification.

At the policy level, developing clear standards for certification is itself a useful process to manage conflicts because it gives a certain discipline and framework to discussions. Herbicides, non-native species, clearcuts etc. can all be discussed one by one, leaving participants clear about where they agree or disagree.

At the site level, independent assessment of a conflictual situation by a third party certifier can sometimes be helpful in ensuring that all participants in a controversy have access to similar information.

It is too early to assess how successful certification will be as a tool in conflict management. This will depend in part on the skills of the certifiers themselves, and the independence with which their programmes are implemented.

REFERENCES

Crowfoot, J.E and Wondolleck, J.M. 1990. Environmental Disputes; Community Involvement in Conflict Resolution, Island Press, Washington, D.C.

FAO 1995a. "Forest Resources Assessment 1990; Global Synthesis", FAO Forestry Paper #124, FAO, Rome.

Glacken C.J. 1965. The Origins of the Conservation Philosophy In: Burton, I. and Kates, R.W. (eds) Readings in Resource Management and Conservation, University of Chicago Press, Chicago.

Harrison, R.P. 1992. Forests; The Shadow of Civilisation, University of Chicago Press, Chicago.

Hellström, E. and Reunala A. 1995. Forestry Conflicts from the 1950's to 1983, European Forest Institute Research Report 3, Joensuu, Finland.

ITTO-International Tropical Timber Organisation 1994. Report on the Working Party on Certification of all Timber and Timber Products, ITTO, Yokohama, Japan.

Knight, A. 1996. A Report on B&Q's 1995 Timber Target in Aspinall, R. and Smith, J. (eds.) "nvironmentalist and Business Partnerships: A Sustainable Model? Cambridge Environmental Initiative, White Horse Press, Cambridge, UK.

Rackham, 0. 1986. The History of the Countryside, J. M. Dent, London.

SFIA (Swedish Forest Industries Association) 1996. Breathrough for Forest Certification (Press release 23 January, 1996), SFIA, Stockholm.

The World Bank 1991. A World Bank Policy Paper; The Forest Sector, The World Bank, Washington D.C.

CONFLICT ANALYSIS AND RESOLUTION, A COMPUTER BASED APPROACH

J. N. R. Jeffers
Mathematical Institute, University of Kent
UK

ABSTRACT

The function of conflict analysis is to enable a participant to make better decisions. These improved decisions are achieved in two stages.First, the available information about the conflict is modelled in such a way that it can be viewed holistically. Second, possible resolutions to the conflict are derived from the model and the available information. The critical property of any suggested resolution is that it should be stable for all of the participants in the conflict, so that this second step may be characterised as stability analysis.

Real world situations often seem impossibly complex and not capable of analysis. Modelling imposes a structure on the real-world situation that emphasises only the essential features of the conflict in order to make it more amenable to analysis. A well designed model can therefore be a useful tool for the decision maker because, while it is not as complex as the real situation, it nevertheless contains just those elements which are essential for making a rational choice between alternatives. Conflict modelling mimics the natural psychological activity that occurs when human decision makers are involved in a conflict.

Metagame theory, an extension of the classical game theory that was developed during the Second World War, provides the basis for a computer based approach to the modelling and resolution of conflicts of all kinds, including those involving hypergames or strategic surprise. While computer modelling of conflict does not guarantee a successful outcome for any individual participant, it has many advantages over purely intuitive approaches to conflict resolution, not least in identifying where improved information is most needed.

Key words: Conflict analysis, stable, stability analysis, modelling, metagame theory, hypergames, strategic surprise

Birger Solberg and Saija Miina (eds.)
Conflict Management and Public Participation in Land Management
EFI Proceedings No.14, 1997

1. INTRODUCTION

While it has become fashionable to engage a wide range of sociological skills in order to encourage public participation in environmental decision making, there is a fundamental requirement in making of decisions which have a direct impact on the environment. Those decisions have to take into account the effects that they will have on the environment and its component ecosystems, including the anticipation of ecological surprise. There are many examples of decisions taken on social and economic arguments which have resulted in less than desirable environmental consequences, and sometimes in environmental catastrophes. By contrast, public participation in decisions on the best way of organising the next Olympic Games, or how best to minimise crime in city centres, does not require much input from ecologists or environmentalists, and sociological and psychological methods may then be the primary tools that are necessary to ensure effective public participation.

Environmental decision making, with or without public participation, requires understanding of a wide range of environmental sciences, and particularly of ecology and of ecosystem processes. There is a common misunderstanding that science consists of a body of immutable fact, so that all that might be necessary is an ability to look up the appropriate information, or to engage a scientific advisor who can reveal the necessary information in the public participation process. In fact, science consists of a complex set of hypotheses that are constantly changing and replaced as they are shown to be false by observation, experiment or survey. There is no point in complaining that scientists are always changing their minds, that is the nature of science.

Nevertheless, there is now a considerable body of detailed knowledge about ecosystems and their processes. Unfortunately, much of that knowledge is necessarily expressed in terms of mathematics, which is the only language capable of representing the complexity of ecosystems, so that it is essentially inaccessible to the majority of decision makers, resource managers, administrators and politicians, and of the general public. Increasingly, therefore, the first stages of any conflict resolution in environmental issues requires a careful evaluation of the likely effects on the ecosystem of any policy or management options that might arise in discussion between managers, administrators and the various interests in the general public. Suggesting how that evaluation can best be done is not, however, the main purpose of this paper, and, in what follows, I will assume that all of the various options have been examined carefully by the appropriate experts to determine their effect on the component ecosystems in the relevant environment. Particular care needs to be taken with the determination of likely effects at ecotones, the boundaries between plant and animal communities, and especially between marine, freshwater and terrestrial communities.

2. CONFLICT: SOME PARADIGMS

There is, of course, an important difference between the ways in which we often assume decisions to be made and the ways in which they are actually made, i.e. between normative and positive statements of decision making paradigms. Allison (1971), for example, suggests that any conflict can be looked at from different levels of reality.

His first model, the rational actor paradigm, assumes that actions result from a choice by a defined agency or actor, which may be a nation, a government, an organisation, or an individual. A rational actor has a single set of goals, a single set of options, and a single set of consequences of those options. The actor reaches a static solution through analysing these goals and objectives, setting out the options, calculating the benefits and costs of each, and reaching a choice that gives the maximum excess of benefits. However desirable this paradigm may seem to many professional decision makers, we probably all have to admit that it is not what happens in any actual conflict.

Allison's second model, the organisational process paradigm assumes that decision making results from established routines within organisations. Consequently, in evolving a collective view, organisations develop stable perceptions and procedures, so that their reactions become perceptible. If unexpected problems arise, the search for solutions will be biased by tradition and by the past training of the staff of the organisation. Government, in particular, is an established conglomerate of organisations, each with its own goals and programmes. Change is marginal and incremental, and long-range planning is largely disregarded. Solutions to problems are not adopted, or even considered, if they depart from existing programmes or demand co-operation with rival organisations. Again, while this model is recognisable in the decision making environment in which many of us have to work, it still does not capture the whole reality.

The third model, the governmental or bureaucratic political paradigm assumes that decision making, especially in government, or in bureaucracies, results from conflict, compromise and confusion among individuals. Solutions to problems are reached by immediate responses, while deadlines impose quick decisions and a false air of confidence in those decisions. Perceptions of different individuals, even within the same organisation, differ and communication is often poor. Decisions can therefore be obtained through vagueness, with different actors understanding different meanings. Many of these characteristics are readily identified in day-to-day interactions with large and bureaucratic organisations.

All of Allison's paradigms are essentially pessimistic in that they do not suggest any way in which decision making and conflict can be improved. Hall (1980) suggests a more positive theory which we can use as a basis for the better understanding of conflict, and the search for ways of resolving conflict. He suggests that decisions arise from a complex process of interactions among actors. All of these actors think of themselves as being rational, and are trying to behave rationally for much of the time, but their conceptions of the rational differ. They have different goals, and different ways of achieving these goals. Thus, the process of decision making is not discrete, but is part of an ongoing complex of interrelated acts, where non-decisions may be as important as decisions.

This more positive theory of decision making forces us to recognise that there is more than one rationality that may be brought to bear on any problem. We need to recognise the validity of the differences in perceptions of the several, and perhaps many, actors involved in any conflict. Dealing with these different perceptions and using them to find a stable resolution to any conflict between them is a necessary basis for dealing with conflict.

3. ANALYSIS AND MODELLING

Elsewhere (Jeffers 1997), I have reviewed conventional approaches to conflict through confrontation, compromise or consensus and contrasted these approaches with more creative methods of conflict resolution. In particular, computer based techniques for morphological analysis, cross-impact modelling, and for personal construct elicitation and comparison can often be used to facilitate better understanding between the actors involved in a conflict, and to generate additional options for its solution. This is not to say that computers can be used as a substitute for thought and rational judgement, but merely that computers can be used as a stimulus to creativity, as well as for mathematical analysis and deductive logic.

For the scientist, the basis of any solution which has to link to our understanding of the environment and its component ecosystem has to be some kind of model, defined here as a formal expression of the essential elements of a problem in either physical or mathematical terms (Jeffers 1982). Real world situations often seem impossibly complex and therefore not amenable to analysis. Modelling imposes a structure on the real-world situation that emphasises only the essential features of that situation in order to make it more amenable to analysis. A well designed model can therefore be a useful tool for the decision maker because, while it is not as complex as the real situation, it nevertheless contains just those elements which are essential for making a rational choice between alternatives. Ecosystem models, for example, enable us to determine the probable reactions of ecosystems to changes in their environments or component species.

In practice, it is not enough to work with models as if they were independent of all the other components of the environment, and of the social and economic systems which have an impact on them. It is necessary to embed modelling in a framework that provides a systematic, scientific approach to the solution of complex problems which we call systems analysis (Jeffers 1978). In essence, systems analysis is the orderly and logical organisation of data and information into models, followed by the rigorous testing and exploration of these models necessary for their validation and improvement. An important advantage of systems analysis is that it enables the scientist to retain a holistic understanding of the ecological, social and economic systems and their interactions while working on the details of some part of those systems. The first approaches to that understanding may often be gained by soft systems analysis (Checkland and Scholes 1991).

4. METAGAME THEORY AND ANALYSIS

While the computer techniques mentioned above are valuable tools for facilitating understanding between the actors in a conflict, mathematical models of conflict have the more precise function of enabling a participant to make better decisions. These improved decisions are achieved in two stages. First, the available information about the conflict is modelled in such a way that it can be viewed holistically. Second, possible resolutions to the conflict are derived from the model and the available background information. The critical property of any suggested resolution is that it should be stable for all of the participants in the conflict, so that this second step may be characterised as stability analysis.

A particularly valuable way of modelling conflict is through metagame theory, which is an extension of the game theory that was largely developed during the Second World War as a method of selecting optimum strategies (von Neumann and Morgenstern 1944). Game theory provides a mathematical framework for analysing games based upon a clear definition of rationality. The normal representation of the game is as a payoff matrix, with each dimension of the matrix assigned to one of the players in the game. In a 2-person game, for example, the rows and columns relate to strategies that are available to the corresponding players. The elements of the matrix are outcomes of the game. An outcome is rational for a player if it is the player's best outcome, given the other player's strategy choice. Clearly, it is a framework that becomes exceedingly complicated as the number of players and strategies increases. The rationality of the outcomes for individual players also depends on rather precise evaluation of the values assigned to the payoff matrix. A light-hearted introduction to game theory is given by Willams (1966).

Metagame theory extends the scope and applicability of game theory essentially by replacing the need to assign precise values to a payoff matrix by ordinal statements of the option preferences for each of the players. Formally, Fraser and Hipel (1984) define a conflict or game as a situation where two or more groups are in dispute over some issue or resource. The participants in the game are called the players. The possible courses of action available to the players in the game are referred to as options. Any set of options that can be taken by a particular player is called a strategy. When each player has selected a strategy, the result is referred to as an outcome. When it is logically impossible or highly unlikely for an outcome to occur, that outcome is infeasible. After the infeasible outcomes have been removed from the game, the feasible outcomes can be ranked ordinally from the most to the least preferable for a given player to determine that player's preference vector.

A game or conflict model consists of the players, their options, and their preference vectors. The stability analysis of the game is performed by determining the stability of each feasible outcome for every player. If an outcome is stable for a given player, it does not benefit that player to move unilaterally to any other outcome by a change in strategy. If such a change is advantageous for a given player, the avoided outcome is unstable. An outcome that is stable for all the players in the game model is an equilibrium and constitutes a possible resolution to the conflict. As the stability analysis stage is used to predict the possible equilibria - there may always be more than

one possible resolution to a conflict - the analysis also represents a **prediction** or **forecast**. Determination of the stability of the outcomes in any conflict is a relatively simple, but tedious, exercise, especially when some of the outcomes are **sanctioned**. A sanctioned outcome is one where a worse outcome that could result from a player changing strategy deters the player from unilaterally attempting an improvement in position. In practice, therefore, it is almost always preferable to use a computer program specially designed to facilitate the analysis and resolution of conflicts, which may have ten or more participants and a large number of possible options.

5. AN EXAMPLE: AFFORESTATION IN CAITHNESS AND SUTHERLAND

In 1990, a conflict developed between the Nature Conservancy Council (NCC) and private landowners over the designation of Sites of Special Scientific Interest (SSSIs) and private landowners in Caithness and Sutherland, Scotland, which effectively prevented landowners from planting trees on their land, despite the financial advantages of doing so through grants from the Forestry Commission. A third participant in the conflict, the Scottish Office, had to decide between the landowners, important and politically influential group, and the NCC, a government agency. Would the Scottish Office support the SSSI designation of large parts of the area which would effectively curtail tree planting?

In effect, there were four participants or players in the game, i.e. the Scottish Office, the landowners, the Forestry Commission, and the NCC. The Scottish Office had 3 options, namely ZONE to adopt an earlier plan effectively dividing the area into zones defining where trees could or could not be planted, SLO to support landowners in any appeal against designation of their land, and SNCC to support the NCC in any appeal by landowners. The landowners had a single option, that of PLANT which entailed planting any land classified by the Forestry Commission as plantable. The Forestry Commission also had a single option, GRANT to provide a cash payment to landowners to subsidise the planting and maintenance of the new forest. The NCC had 2 options, OPP opposing all further planting in what they regarded as an environmentally sensitive area, and SEL designating selectively to protect only the most sensitive areas.

Because each of the options can either be selected or rejected, there are 128 possible outcomes. However, there are a number of infeasible combinations. First, the Scottish Office can adopt one, and only one, of its three positive options. Second, the landowners will only plant trees if they receive a grant from the Forestry Commission, and the Forestry Commission will only make a grant if the landowner actually plants trees. Last, the NCC does not need to oppose planting if the landowners have no intention of doing so, and the landowners would not oppose designation of land as SSSIs if the NCC was selective in its designations.

The resolution of this conflict is given in the table 1 below, in which the adoption of an option is indicated by a 1 and not adopting an option by a 0.

Table 1. Preferences and stability analysis - Scottish Office.

Scottish Office																
ZONE	0	0	0	0	1	1	0	0	0	0	1	1	0	0	0	0
SLO	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
SNCC	0	0	0	0	0	0	1	1	0	0	0	0	1	1	0	0
Landowners																
PLANT	1	1	0	0	1	1	1	1	1	1	0	0	0	0	0	0
Forestry Commission																
GRANT	1	1	0	0	1	1	1	1	1	1	0	0	0	0	0	0
Nature Cons. Council																
OPP	0	1	0	0	1	1	1	1	1	1	0	0	0	0	0	0
SEL	0	0	1	0	0	0	0	0	0	0	1	0	1	0	1	0
Stability			E	E												
Scottish Office	r	r	r	r	u	u	u	u	u	u	u	u	u	u	u	u
Landowners	r	r	r	r	r	r	r	r	r	r	r	r	r	r	r	r
Forestry Commission	r	r	r	r	r	r	r	r	r	r	r	r	r	r	r	r
Nat. Cons. Council	u	r	r	u	r	u	r	u	r	u	r	s	r	s	r	s

The outcomes in Table 1 are ordered by the preferences of the Scottish Office. The most preferred outcome to the left of the table is that in which the NCC does not oppose the planting of any land, and the Scottish Office supports the landowners when they wish to plant trees with a grant from the Forestry Commission. The least preferred outcome to the right of the table is the one in which none of the players exercises any option, effectively the *status quo*. All of the other outcomes are also ordered so that a preferred outcome is to the left of the table. The stability of each outcome for each player is indicated below the table by the letters r (rational), U (unstable), or s (sanctioned). Only 2 of the outcomes are rational for all 4 players, and these are possible resolutions to the conflict. The resolution which is preferred by the Scottish Office is that in which the NCC opposes all planting, but the landowners plant trees with a grant from the Forestry Commission, and with the support of the Scottish Office, and this was the eventual resolution of the conflict.

Table 2 shows the preferences and stability analysis from the point of view of the NCC. The preferences for the NCC are dominated by its wish to prevent any further planting of trees, and to actively oppose planting by the designation of SSSIs so as to conserve an integral system of peat bogs. The NCC wanted the support of the Scottish Office, but was reluctant to be selective in its designation of SSSIs. It also did not want to be constrained by the zoning scheme which had already been proposed. The same two equilibria are indicated in the table, and clearly the outcome of this conflict was unfavourable to the NCC if, as happened, it chose to oppose any planting in the area.

Table 2. Preferences and stability analysis - NCC.

Scottish Office	0	0	1	0	1	0	0	0	0	1	0	0	0	1	0	0
ZONE	0	0	0	0	0	0	1	1	0	0	0	1	0	0	0	1
SLO	1	1	0	0	0	0	0	0	1	0	0	0	1	0	0	0
SNCC																
Landowners	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
PLANT																
Forestry Commission	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
GRANT																
Nature Cons. Council	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0
OPP	1	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0
SEL																
Stability						E					E					
Scottish Office	u	u	u	u	u	u	r	r	u	u	u	r	u	u	u	r
Landowners	r	r	r	r	r	r	r	r	r	r	r	r	r	r	r	r
Forestry Commission	r	r	r	r	r	r	r	r	r	r	r	r	r	r	r	r
Nature Cons. Council	r	s	r	r	s	s	r	u	r	r	r	r	u	u	u	u

If the NCC had had the benefit of conflict analysis, it could have predicted this resolution and avoided it. One possible strategy would have been to form a coalition with the Forestry Commission. There would then have been a single equilibrium in the conflict, in which the landowners would have been able to plant trees within a carefully selected set of sites, with the aid of a grant from the Forestry Commission.

6. CONCLUSIONS

Conflict analysis and resolution has been used in a wide range of problems, including military, economic, industrial and environmental conflicts. Fortin and McBean (1983), McBean et al. (1985) and McBean and Okada (1988) used metagame theory for the resolution of conflicts over acid rain in North America, while Fraser and Hipel (1980) used it to find a resolution of the conflict over water management on the Poplar River in Canada. Kilgour et al. (1988) extend the analysis to situations where there are misunderstandings or misperceptions, as in the Grayrocks Dam dispute, and in what are now called hypergames which contain strategic surprise. Hamar (1993) used conflict analysis to explore the potential for coexistence of wildlife and developing pastoralism among the Maasai in the Amboseli region of Kenya. Other uses include conflicts in the designation of wildlife reserves, strategies for the amelioration of global climatic warming, alternative uses for land taken out of agriculture, and the choice of wildlife conservation measures in agriculture and forestry. Bargaining and negotiation are often important components of conflict resolution, especially where there is

significant public participation. Fraser (1983) describes the use of metagame theory in the Holston River negotiations, in which bargaining and negotiation were important factors.

Formal conflict analysis and resolution through the use of metagame theory offers a number of advantages over the more usual intuitive or legal approaches to the handling of conflict:

1. Available information about the problem is retained and structured so that the analyst can examine a complex problem in a realistic and objective way.
2. Conclusions about the conflict can be verified and communicated easily.
3. Implications of information the analyst already has are readily discerned.
4. The areas where information is most needed are made apparent.
5. The correct course of action for any participant can be determined.

Metagame theory has more recently been extended to incorporate graph theory, and the resulting graph model of conflicts systematically accounts for the feasible changes of state that can take place during a conflict. The graph model can properly describe and distinguish reversible and irreversible moves, and it forms a solid framework upon which solution concepts for describing human behaviour can be defined, assessed, and compared. It also enables the analyst to describe and resolve conflicts with very large numbers of participants and options (Fang et al. 1993).

REFERENCES

Allison, G.T. 1971. Essence of decision: explaining the Cuban missile crisis. Little, Brown, Boston.

Checkland, P. and Scholes, J. 1991. Soft systems methodology in action. John Wiley & Sons, Chichester.

Fang, L., Hipel, K.W. and Kilgour, D.M. 1993. Interactive decision making: the graph model for conflict resolution. John Wiley & Sons, Chichester.

Fortin, M. and McBean, E.A. 1983. A management model for acid rain abatement. *Atmospheric Environment* 17: 2331-2336.

Fraser, N.M. 1983. New perspectives in bargaining and negotiation. Ph.D Thesis, Department of Systems Engineering, University of Waterloo, Ontario, Canada.

Fraser, N.M. and Hipel, K.W. 1980. Metagame analysis of the Poplar River conflict. *Journal of the Operational Research Society* 31: 377-385.

Fraser, N.M. and Hipel, K.W. 1984. Conflict analysis: models and resolutions. North Holland, New York.

Hall, P. 1980. Great planning disasters. Penguin Books Ltd., Harmondsworth.

Hamar, C.J. 1993. Integrating conservation and developing pastoralism. Msc Project Dissertation, Durrell Institute, University of Kent, Canterbury.

Jeffers, J.N.R. 1978. An introduction to systems analysis: with ecological applications. Edward Arnold, London.

Jeffers, J.N.R. 1982. Modelling. Outline Studies in ecology. Chapman & Hall, London and New York.

Jeffers, J.N.R. 1997. Conflict analysis and resolution. M. Walkey. In: New practices for integrated protected areas management. Chapman & Hall, London.

Kilgour, D.M., Okada, N. and Nishikori, A. 1988. Load control regulation of water pollution: an analysis using game theory. *Journal of Environmental Management* 27: 179-194.

McBean, E.A. and Okada, N. 1988. Use of metagame analysis in acid rain conflict resolution. *Journal of Environmental Management* 27: 153-162.

McBean, E.A., Ellis, H. and Fortin, M. 1985. A screening model for development and evaluation of acid rain abatement strategies. *Journal of Environmental Management* 21: 287-299,

von Neumann, J. and Morgenstern, O. 1944. Theory of games and economic behavior. Princeton University Press, Princeton, N.J.

Williams, J.D. 1966. The compleat strategyst: being a primer on the theory of games of strategy. McGraw Hill Book Company, New York.

ASSESSING CONFLICTS AS APPROPRIATION FAILURES AND CONTRASTS, WITH AN APPROPRIATE SCALE: SUMAS

H.W.J. Boerwinkel
Wageningen Agricultural University
The Netherlands

ABSTRACT

Conflicts are defined as disturbed balances in appropriative psychological transactions of different interest groups. These transactions can be differentiated in four categories. For assessment of conflicts a specific SUbjective Motor Appropriation Scale (SUMAS) is introduced. First, basic characteristics of the scale are dealt with, such as the theoretical background and validity of the scale, and the relationship with appropriative categories. Next, appropriative patterns, and contrasts in them between interest groups, are demonstrated with a SUMAS study on conflicts between anglers and surfers. Both patterns of appropriation of the 'other' group and its actions, and appropriation of possible measures for solving conflicts are presented. Consequences are discussed for an integrative psycho-ecological assessment of the total social and physical environment of a conflicting management system.

Key words: Environment, conflict, assessment, scale, appropriation

INTRODUCTION

Conflicts in environmental management are, when viewed from a social perspective, conflicts between interests of different groups. The opponents can be, on one hand, owners or managers, and on the other hand, recreationists, or they can be different recreationist groups, or user groups versus neighbourhood residents, or nature versus man, et cetera. Viewed from a psychological perspective, however, conflicts are basically disturbed balances in appropriative definitions of actors. According to Chombart De Lauwe (1976) the four basic categories of appropriation are, summed up in a different order for reasons to be explained below; 'aesthetics', the ability to 'modify' and 'use', the ability to 'act more or less freely' and exert 'dominance' in cases of 'conflict', and the ability to experience the environment as 'symbol-bearer .. according to a hierarchy of values'.

Birger Solberg and Saija Miina (eds.)
Conflict Management and Public Participation in Land Management
EFI Proceedings No.14, 1997

The four appropriative categories differentiated by Chombart De Lauwe appear to be connected to four very basic, and general, psychological transaction structures that differ mainly in time perspective (Boerwinkel 1986, 1995). Aesthetic appropriation is a specification of general 'exploration', i.e. perceiving and interpreting an environment without a goal (Berlyne 1960: 'diversive' exploration). Modification and use are specifications of general 'instrumentality', i.e. learning about an environment and using it. The ability to act freely and to exert dominance are specifications of general 'existence', i.e. growing up and living in an environment. Finally, the ability to experience the environment as symbol-bearer according to a hierarchy of values is a specification of 'basic cultural values', i.e. communicating culturally and symbolically with an environment.

In forest conflicts different types of conflicts can be analyzed as having different patterns of appropriative failures for different interest groups. Conflicts between recreational visitors and managers of production forests are often patterned on the visitor's side as 'explicitly aesthetic' plus 'abstinence from modification through felling' plus 'free access, without, however, visitor's dominance' plus 'specific symbolism as regard the untouched appearance'. On the manager's side the pattern is rather defined as 'disregard of aesthetics' plus ability to 'modify at will' plus 'freedom to act dominantly' plus 'disregard of symbolism'.

Conflicts between different recreational visitor groups have other appropriative pattern contrasts (APC). While aesthetics, modification, and symbolism may be approached by such groups in equal terms, freedom of, and dominance in, acting will most of the time be the basis of conflict. Walkers may feel pushed off the paths by cyclists or cars, anglers may feel pushed off from their spot at the shore by surfers. On the other hand, aesthetics may also be involved in APCs, when for instance walkers feel their aesthetic need for tranquillity and solitude being obstructed by presence of other people of any kind.

APPROPRIATION MEASUREMENT WITH AN APPROPRIATE SCALE: SUMAS

The differences in internal structure of APCs, for different combinations of interest groups involved, make it preferable to assess the psychological aspects of conflicts, and evaluations of solutions for solving them, in a manner that takes into account the integrative implication of appropriation itself. One measurement technique that enables such an integrative analysis of conflicts and solution evaluations is the SUbjective Motor Appropriation Scale (SUMAS; originally the A stands for the Dutch 'afstand', which means 'distance') was used for the first time by Boerwinkel et al. (1969) to assess the appropriative status, or 'relevance', of an experimental task in a laboratory in terms of psychological 'distance' or 'closeness'. The subject, indicated by the word 'Me' on the left side of a sheet of paper (Figure 1), was asked to score the closeness or distance feeling toward the task with an arrow, starting from 'Me' toward one of nine circles, located at equal intervals, to the right.

At the time of first use, the legitimation of the SUMAS construct was particularly found in the works of Kurt Lewin (1951) and Edward Hall (1966). Lewin's 'life space' concept was intimately connected with the integrative conceptualization of his 'psychological ecology'. The life space was primarily differentiated in a 'person' who intended to make 'locomotion' toward, or away from, a 'goal'. These primary elements are found in the SUMAS elements 'ME', 'motor', and the object of appropriation feeling, such as 'cheese'. The 'valence' of the goal, as the driving motivation force in the subject for locomotion toward the goal is, as another central concept in Lewin's life space conceptualization, quite in agreement with the motivational aspect of appropriation. Appropriation, as the dynamic intensified relationship with an object, can be considered as a combination of valence and psychological locomotion.

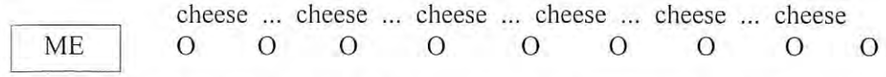

Figure 1. The SUbjective Motor Appropriation Scale (SUMAS). After Boerwinkel et al. (1969).

The other source for the constructive legitimation of SUMAS is connected with the same locomotive background as Lewin's, but more literally. This source is the personal space framework of Edward Hall (1966). Also, the scale points of SUMAS have a relationship with Hall's theoretical framework. Hall used the concept of what he called the 'hidden dimension' in relationships between people to indicate the different physical distances people observe toward each other, as their relationship varies from 'public', to 'social', to 'personal, and 'intimate'. When people have an intimate relationship they will -at least at certain times- keep the physical distance toward the other as close as possible. When the relationship is less intimate, i.e., 'personal', or 'social', or 'public', they will keep an accordingly greater physical distance. The connection between the 9 SUMAS scale points and Hall's interpersonal distances will be further highlighted below.

Since the first use in the Boerwinkel et al. (1969) study, SUMAS was used in studies with many different objects. Objects to be evaluated could be social elements of the environment, i.e. persons and groups, such as other participants in a group training situation, people at the workplace, neighbours, and people living in the residential city, and the people to be encountered in recreational settings. On the other hand, objects could be physical elements of the environment, such as urban environments, rural landscapes, forests, and individual trees. Furthermore, opinions about social and physical elements, and any other attitude object, were involved in SUMAS-evaluations, such as opinions about the environment, and values. Using factor analysis, dimensions of appropriative structures could be found in which the psychological relationships between diverse elements were revealed. In this way the hierarchical structure of the life space could be established in a truly psycho-ecological sense.

Next to the measurement of single and fixed elements, a SUMASM technique was set-up (Boerwinkel and Jansen 1994), using a computer mouse in a runway in order to assess appropriation scores for a continuously changing object, such as a sequence of landscape images.

SUMAS VALIDITY DATA

On the basis of the above-mentioned definitions of interpersonal distances by Hall, one should find the four distances; intimate, personal, social, and public, to be represented by different parts of the total SUMAS range of 9 scale points. Intimate relationships should ideally fall in the lowest range, while personal relationships should fall in the range that still reveals more closeness than distance, but less than intimacy. Social and public relationships should fall on the scale points located at accordingly greater distances from 'Me'.

This presumed distribution of environmental elements over the total SUMAS range was indeed found in a Dutch study by Raemaekers (1983; Figure 2). Primary groups with 'intimate' and 'personal' connotations, such as the family, the colleagues in the neighbourhood, and the products of the family business, were scored by farmers and market-gardeners in the range of 1-2.5. The personalised aspects of secondary business groups, such as the organization of farmers and the young agrarians, were scored in the range of 2.5-3. Groups with a more 'social' meaning, such as the bank organization and the workers in the co-operative, were scored between 4 and 5. Public concern groups, such as consumers, environmental concern groups, and groups that act on behalf of animals, were scored in the range of 4-7.5. The position of nature was special in this research. For those who crossed out the adjective 'untouched' in the questionnaire, indicating a less intimate relationship with agricultural nature, the score averaged at 3.6, while the rest scored untouched nature at a significantly lower 2.5, apparently on a more personal or intimate basis.

The study by Raemaekers showed that the SUMAS technique registers at the end of the scale an emotional relationship that is stronger in a negative sense than a mere movement away from a goal. It is much more concerned with aggression than with escape. This aggressiveness is a locomotive option which neither Lewin nor Hall had observed as explicitly as some other psychologists had. Horney (1945), for instance, conceived, next to 'moving toward' and 'moving away from' an object, the emotion of 'moving against' an object. Brehm (1972) elaborated, in a similar line, the concept of 'psychological reactance', an emotion that is to be expected when freedom is threatened by another person or by an object. In the Raemaekers study the environmental action groups have certainly aroused in the farmers this emotion of psychological reactance, or psychological movement against, presumably because the robbing of freedom, a feeling of alienation, due to the interference of action groups in farmer's management matters.

Dividing the 9 scale points of SUMAS between the combination of Hall's interpersonal relationships and the reactance concept, the following rough picture may be sketched: 'intimacy' should cover scale points 1-2; a 'personal' relationship scale points 3-4; a 'social' relationship scale points 5-6; a 'public' relationship scale points 7-8; and 'reactance' scale point 9.

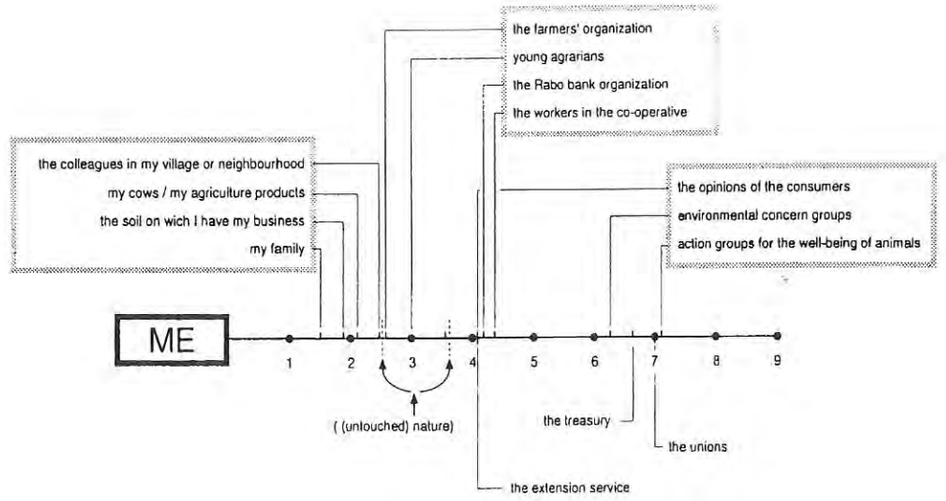

Figure 2. Appropriative patterns in SUMAS mean scores for social and environmental aspects of the living conditions of a group of farmers and market-gardeners. Enclosures mark principal component factors. Adapted from Raemaekers (1983).

This scheme suggests four transition points of significant psychological change in emotional relationship with an object. However, arguments for a more simple division of scale zones should also be considered. The Hall construct of interpersonal distances does not explicitly imply some sort of a breaking point in the middle of the scale. Nevertheless, the intimate and personal distances do have a general atmosphere of appropriative acceptance, while the social and the public distances, and the reactance situation, do have a general atmosphere of misappropriation. Consequently, it is tenable that, for the sake of simplicity, scores that fall below scale point 5 can be considered as indicating basic appropriation, while scores that fall above 5 would accordingly be judged as basic misappropriation. The difference between a more neutral misappropriation and true rejection within this misappropriation range was visible in the farmers' study (Figure 2), where the public concern groups, although operating within a single psychological factor, differ rather strongly on SUMAS scores. The consumer is scored in the near range, presumably because it is a category that has to be generally socially accepted by farmers as the main client of their business. The environmental action groups, however, are scored on a much greater distance, for the reasons given above.

Indications of the validity of SUMAS may also be established by correlations with other evaluative measures, such as the Semantic Differential technique (SD). From the above-mentioned information on construct validity, and research in which the SD was explicitly used to assess psychological distance to persons (Defares and Van der Werff 1968), it would be gathered that the SUMAS technique measures predominantly the evaluation dimension of the SD. This appeared indeed to be the case in several Dutch

studies. Boerwinkel et al. (1969) found a correlation of -.31 (N=124; p<.001) with 'pleasantness' of the task (judging lengths of lines, and memorising words), and .03 (N=124; p=.n.s.) with 'familiarity' with these tasks. Van der Ham (1972) found a correlation of .43 (N=234; p<.001) with the evaluative dimension of the SD, while the correlation with the 'scale' dimension (openness) was -.04 (N=234; p=n.s.), and with 'potency' .06 (N=234; p=n.s.).

In a study on forest perception and valuation with a group of 35 respondents, Kruf and Van Sambeek (1982) computed correlations between average SUMAS and average scores on simple adjectives used to describe 21 colour photographs of forest stands. A correlation of -.97 between average SUMAS and average 'attractiveness' was found. Equally, or almost equally, high correlations turned up for SUMAS with average 'invitingness' (-.97), 'freshness' (-.84), 'naturalness' (-.82), 'untouched status' (-.81), and 'adventurousness' (-.75). The correlation of SUMAS with 'order' was at the same level, but in the opposite direction (.80). Correlation with aspects, such as 'openness', was low (.20), and with 'accessibility' practically zero (.04).

The conclusion from combined SUMAS and SD, or other adjective assessments is, as before, that SUMAS measures typically emotional aspects of life space appropriation.

SUMAS AND APPROPRIATIVE CATEGORIES

Trying to connect SUMAS with the four basic appropriative categories, it appears that exactly the overall appropriative status of SUMAS constitutes a definite uncertainty as to the specific category that is involved. One and the same SUMAS-score can reveal any combination of these categories. If, for instance, a researcher presents to a subject a landscape to be evaluated with SUMAS, it depends on the familiarity the subject has with this object whether the score reveals a more superficial aesthetic exploration, a more experienced modifying instrumentality, a still more profound existential freedom, or a most profound basic cultural attitude toward aspects of symbolism. The Raemaekers study (Figure 2), however, shows that, by its factor analytic structure, it evidently enables yet a differentiation of appropriative categories. With the SUMAS 'primary groups' dimension appropriations were apparently registered that belong in the existential category, while the 'secondary groups' dimension was more focused on instrumental appropriations. The SUMAS scores for 'environmental action groups' could, further, very well be interpreted as revealing basic cultural attitude judgements. This could also be true for the 'consumers', although instrumental connotations might be dominant also in this case.

CHANGING VALIDITY OF SUMAS IN GROUP DYNAMICS

The very appropriative status of SUMAS also offers a further uncertainty regarding its validity. As objects may sometimes shift their appropriative status in a short time, due to strong impacts on existential and basic value relationships, the validity of SUMAS may shift accordingly. In a study with SUMAS in training groups De Swaaf (1971) measured appropriation of two aspects of the training situation 9 times in three days, i.e. SUMAS appropriation of the group and of the trainer. Table 1 shows that appropriation of group and trainer were generally increased (SUMAS means decreased) during the three day training period. Next to these SUMAS evaluations, a scaled self-assessment was administered in terms of 'feeling confident', 'feeling esteemed', 'feeling comfortable', 'feeling free from trainer', 'feeling useful', and 'having expectations from training'. Further, a standard measure for dogmatism (assessed with Rokeach's (1960) Dogmatism Scale, translated by Defares and Van Praag (1969)), and a measure of sociability (constructed by De Mey (no further reference)) were included. Both were assessed at the start and at the end of the three-day training period. In an unpublished, secondary analysis by the present author, nine factor analyses were executed for each of the nine administrations of SUMAS, the self-assessments, and the first dogmatism and sociability measures. SUMAS appropriation of the group and of the trainer appeared to have shifting relationships with self-assessments, and with dogmatism and sociability, as indicated in Table 1.

SUMAS measurement of appropriation of the group and of the trainer were generally part of one and the same dimension in the factor structure of each administration. Only in the early acquaintance period, at administration 3, the subjects once differentiated between appropriation of the group and of the trainer. SUMAS to the group was more defined then in terms of feelings of confidence, comfort, and freedom from the trainer, while SUMAS to the trainer was defined rather in terms of feeling esteemed. This indicates the power of the trainer/discussion leader as a separate influence on SUMAS in group dynamics situations. The correlated meaning of SUMAS to the group and to the trainer in other phases did not mean, on the other hand, that the psychological basis of SUMAS was the same all the time. From phase 1 to 4, validity of SUMAS shifted from ego-directedness (stress on 'confidence') to other-directedness as affected by the trainer (feeling 'esteemed' by the trainer). From phase 6 to 9, SUMAS validity shifted from other-directedness to general pay-off considerations from training (feeling 'useful', and 'having expectations from training'). It may be mentioned, further, that in phase 8 SUMAS did not co-vary considerably with any of the other 'feelings' assessments. SUMAS was, also, correlated in phase 5 with initial dogmatism, meaning that the subjects high on dogmatism were inclined to stronger appropriation of the group and the trainer at this stage.

Table 1. Correlates of SUMAS appropriation of the trainer and the group in a three-day group training situation with nine administrations based on inclusion in the same factor for each administration. Secondary analysis of data from De Swaaf (1971) (N=66).

Administr. phase	1	2	3	4	5	6	7	8	9
day/time	1st day 1st adm. (1)	1st day after .5 hr	1st day after 1 hr	1st day after 1.5 hrs	1st day after 2.5 hrs	1st day end 1st d	2d day at noon	2d day at even.	3d day at end
Mean: SUMAS Me-Group	4.9	5.0	4.6	4.1	4.0	3.6	3.0	3.0	2.4
SUMAS Me-Trainer	6.7	5.8	5.7	5.0	4.6	3.5	3.5	3.1	2.5
Factor loadings *: SUMAS Me-Group	-.64	-.91	-.61	-.48	-.71	-.81	-.81	.87	-.86	-.67
SUMAS Me-Trainer	-.79	-.86	-.39	-.67	-.84	-.82	-.79	.51	-.87	-.55
confident	.74		.88						.50	
esteemed		.59		.88	.72					
comfortable	.64	.59	.82				.42	-.49	.66	
free from trainer	.54	.72	.85							
useful						.46		.90	.85	
expecting						.76		.68	.74	
Dogmatism					.49					
Sociability	.43		.66							

* for the factor in each of the nine analyses with highest loading of Me-Group and or Me-Trainer; only loadings >.40 or <-.40 are presented; only in the 3d administration, Me-group and Me-Trainer were involved in different factors

While this study highlights the shifting validity of SUMAS as the measurement of shifting appropriations due to the course of group dynamics, it does not indicate the shifting role aesthetics may have when social factors change dynamics. For this a study will be presented in the next section that exemplifies the shifting role of vegetation in environmental design when both greenery and presence of other cyclists are experimentally manipulated on black-and-white sketches and evaluated with SUMAS.

SUMAS AND CONFLICT MANAGEMENT OF RECREATIONAL SITES

In a study on conflicts between two user groups of recreational waters, i.e. anglers and surfers, De Milliano and Van Sambeek (1986) used SUMAS in one part of their study for the evaluation of other recreational groups, among which was the other group that was involved in the controversy. At the same time some of the actions of the other group, actions that could be assumed to present more or less annoyance to the subject group, were assessed with SUMAS. In another part of the study, different measures to alleviate the pressure from surfers on anglers, measures that were represented on 10 black-and-white sketches, were administered with SUMAS. For this part of the study the exclusive focus on anglers as subjects was chosen, because of the fact that anglers were the most hindered group in the controversy.

In Figure 3 the average SUMAS scores and the factor structure for the anglers' evaluation of other recreational groups and the actions of surfers, as found in the first part of the study, are presented. Figure 4 contains the similar data for the surfers. Although in the first analysis the average misappropriation of surfers by anglers (SUMAS at 6.0) appeared not to be significantly different from the misappropriation of anglers by surfers (SUMAS at 5.0). Boerwinkel (1986), in a secondary analysis of the data, concluded, however, that the difference was yet significant when controlled for age of the subjects. Apparently, the anglers showed less reactance to surfers than expected from the hindrance intensity, because the anglers were older, and therefore maybe wiser, or more resigned.

Observing Figures 3 and 4 again it is also apparent, first, that both groups differentiated clearly between those actions of the other group that are quite harmless, actions that provide annoyance, but are either unintentional or unavoidable, and actions that are both annoying and either intentional or avoidable. While surfers who put their boards on the shore close to anglers, and surfers who disturb tranquillity, meet strong reactance (dimensions 5 and 4), unexperienced surfers get the benefit of the doubt (dimension 3), and surfers who are just using the facilities they need for their activity are even accepted in the personal SUMAS range (dimension 1). For surfers the differentiation is seemingly less striking, but this is due to the lower number of activities differentiated by the researchers in the questionnaire. The two activities that were differentiated, i.e. anglers using parking-places, and anglers sitting on boarding shores for surfers, were put in different dimensions (2 and 3).

Second, Figure 3 and 4 demonstrate appropriative contrasts between the two groups. While anglers put surfers, in general, on a larger SUMAS distance than surfers did with anglers, surfers experienced anglers, in general, more in a controversy scheme than anglers did with surfers. For the surfers the anglers were put in the most annoying dimension of people, invading intentionally the territory of the surfers (Figure 4, dimension 3), while the anglers put the surfers in general in the benefit of the doubt category (Figure 3, dimension 3). This appropriative contrast between the two groups suggests that more energy should be invested in informing surfers about their impact on anglers than the reverse. In this study the two recreational groups appeared to have indeed different appropriative patterns, as far as one particular appropriative category was concerned, i.e. the freedom to act and be dominant in one's own little territory.

Considering the appropriative pattern which the surfers as a group, and because of their actions, created for the anglers, a correlated appropriation pattern of management solutions may be expected, as assessed in the second part of the study in the small group of anglers. As mentioned above, in this study only a group of anglers was asked to evaluate, with SUMAS, 10 solutions presented as sketches in black-and-white (Figure 5). In table 2 the SUMAS mean scores for every sketch is presented, combined with the loading on the dimensions that were acquired through factor analysis (principal component analysis with varimax rotation). This analysis was, again, performed by the present author in a secondary analysis. As can be observed in Table 2, the exclusive facility for anglers in the form of an inlet was judged as most favourite (SUMAS mean score at 2.2). In the first dimension this solution stood with a large negative loading as an antipole to solutions that would still provide some annoyance for anglers when forced to share the same space with other user groups in general. The floating separation line of solution 5, although not misappropriated (SUMAS at 3.9), was considered, as became apparent in the verbal clarifications of SUMAS scores afterwards, as a border surfers could easily cross. The little bench was, further, judged by some anglers as attracting passers-by of other user groups who would ask awkward questions, and make unwelcome comments. SUMAS mean score for this facility was, accordingly, in the misappropriation zone of SUMAS (5.5). The second dimension contained solutions that would create only a small zone of privacy for anglers in providing inaccessibility for surfers to go ashore. The solutions contributing most to this dimension averaged on the brink of misappropriation (SUMAS for the highest loading solutions at 4.9 and 4.6). The third dimension, at last, contrasted aggressive and non-aggressive artificial solutions, the former being rather misappropriated.

The conclusion, in regard of the appropriative structure of solutions, appears to be, again, that the solutions were judged as either accepting surfers and other user groups or not (dim. I), or favouring a soft impact on surfers, or favouring a strong, reactive, impact or not. This structure parallels rather closely the appropriative structure of surfers themselves and their actions, in terms of accepting them anyway, accepting their unintended annoying behaviour, or rejecting their intended annoying actions (Figure 5).

Observing the three dimensions of Table 2 again, and considering the fact that all these dimensions could be interpreted as involving solutions of the conflict with surfers, it is evident that aesthetic aspects, which are also present in the displayed solutions, have been pushed to the background. This does, however, not imply that SUMAS is only, or particularly suited to cover the freedom of action category, as indicated as one of the four appropriative categories by Chombart De Lauwe. Elsewhere the focus has been more on the use of SUMAS in research of aesthetics (Boerwinkel 1996), thereby stressing the intrinsic affinity between different appropriative categories within the general framework of appropriation theory.

Table 2. SUMAS mean scores and factor loadings on three dimensions in the same SUMAS scores regarding 10 sketched solutions, in black-and-white line drawings, for annoyance created by surfers and other user groups on behalf of 25 anglers. Secondary analysis by the present author of data from De Milliano and Van Sambeek (1986).

Management solutions on sketch	No. in question	SUMAS mean	Dim. I excl.	Dim. II priv.	Dim. III aggress.
inlet	5	2.2	-.64	.43	
barren platform	2	7.1	.49		
trees	8	3.0	.45	.44	.49
bushes	10	2.6	.67		.49
floating line	6	3.9	.71		
bench	9	5.5	.78		
platform and reed	1	4.9		.90	
reed hedge	7	4.6		.88	
platform and sign	4	4.3			-.70
platform and wire	3	5.2			.74

CONCLUSION AND DISCUSSION

When either management or interest groups want to be informed about the conflicts in resource management, and also about the public sustainment of design and management measures to solve these problems, SUMAS may be an adequate technique to use. As conflicts may involve many possible elements of the total psycho-ecological situation, apart from diverse interest groups and the environmental objects on which they are primarily focused, SUMAS appears, when management itself and general policy considerations are included, particularly suited to cover appropriative properties of any range of socio-environmental aspects in an integrative manner. Using multivariate analysis techniques, such as principal component analysis, on the one hand, the researcher may give those interested a profound insight in the hierarchical structure of appropriative schemes operative in interest groups regarding persons, activities, environmental settings, management measures, et cetera. Also, the appropriative contrasts that emerge between different interest groups may clarify, for those concerned, the different 'psychologies' each group may handle. Using the simple average SUMAS scores, on the other hand, the researcher may give those interested a direct insight in the appropriative acceptability, and limits, of other people's impact on the recreative experience, and in the acceptability of projected measures.

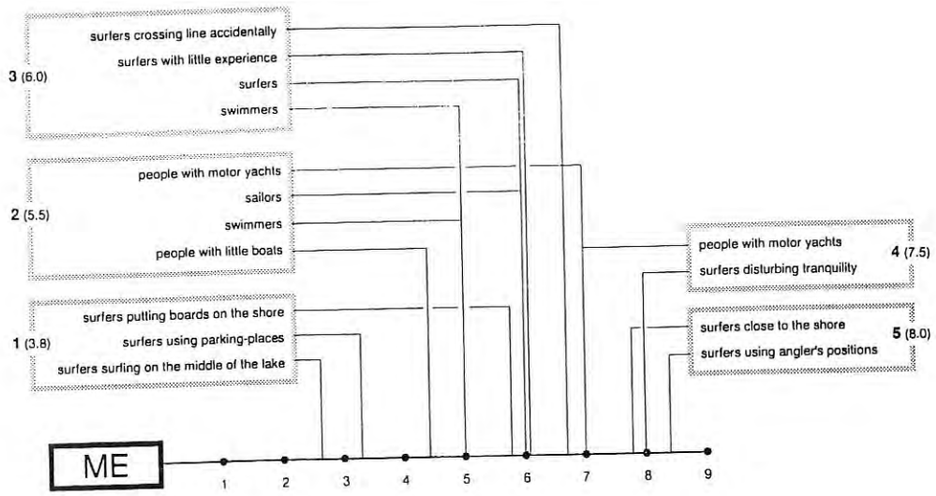

Figure 3. Appropriative patterns in SUMAS mean scores for surfers, their actions, and other elements of the recreational experience, as judged by anglers. Enclosures mark principal components, numbered in order of average SUMAS score for the dimension (between parenthesis). Adapted from De Milliano and Van Sambeek (1986).

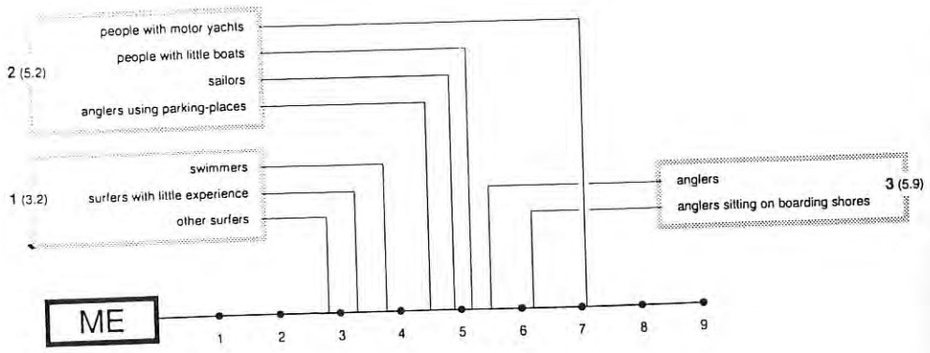

Figure 4. Appropriative patterns in SUMAS mean scores for anglers, their actions, and other elements of the recreational experience, as judged by surfers. Enclosures mark principal components, numbered in order of average SUMAS score for the dimension (between parenthesis). Adapted from De Milliano and Van Sambeek (1986).

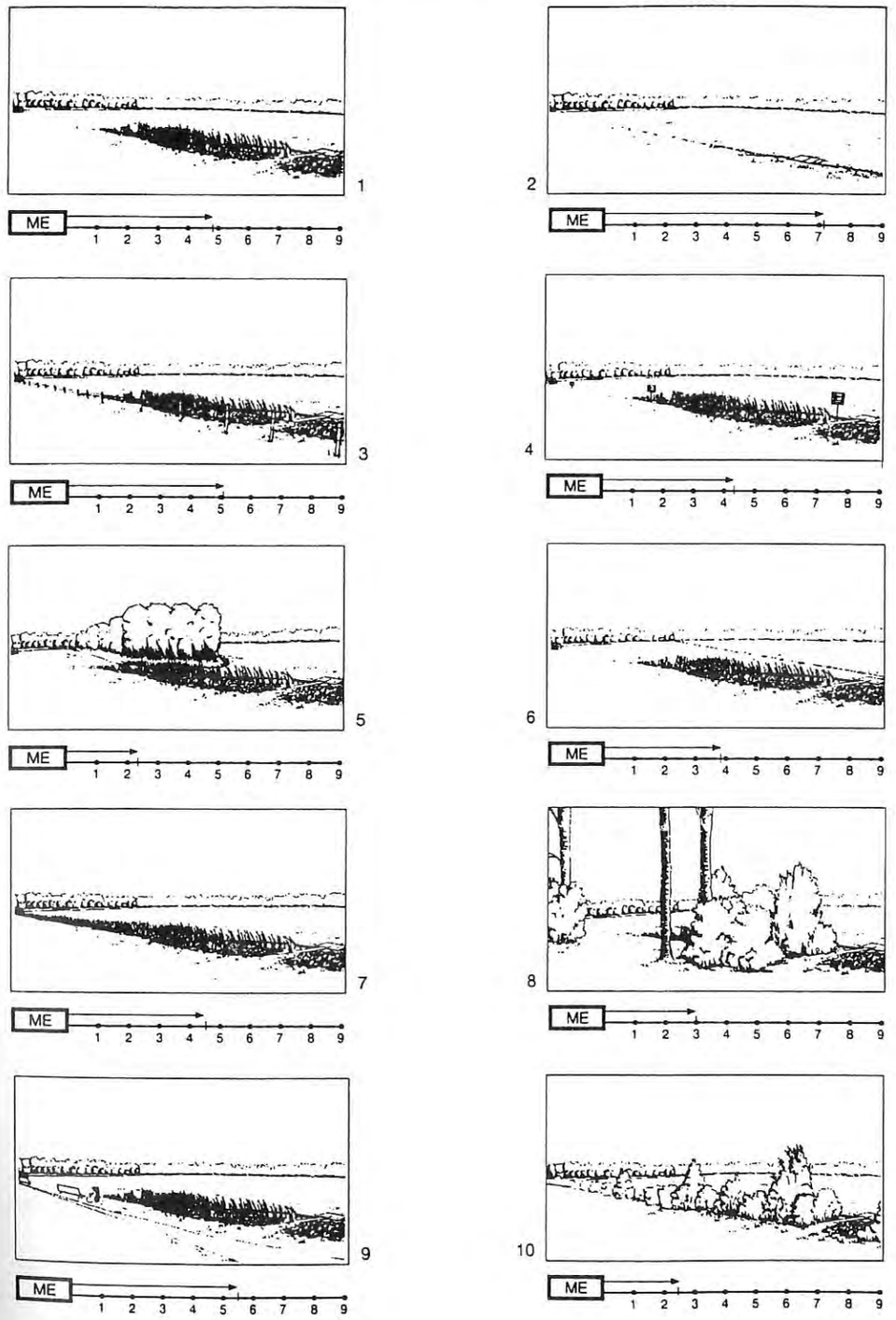

Figure 5. SUMAS mean scores for measures to be applied as solutions of hindrance problems of surfers against anglers. After De Milliano and Van Sambeek (1986).

Finally, it should be stressed that next to different elements, such as diverse actor groups, environmental properties, and measures, also different appropriative categories may need consideration in conflict assessment studies. In the presented studies freedom of action was the central issue, for obvious reasons. Examples of conflicts in forest management involving aesthetics, freedom of modification, and the experience of symbolism are, however, not difficult to find. An aesthetic versus modification conflict may, for instance, emerge in forests when a beautiful stand of old trees, which visitors consider to be characteristic of a cherished local atmosphere, are felled because of old age, profit, or disease. Often, the aesthetic category is mixed up with the symbolic, when visitors or residents fiercely oppose felling of trees because of their beauty and their century-long resistance to the recklessness of modern man, and because of their representation of nature's fragility. Such opposition is illustrated in, for instance, the study by Konijnendijk 1997. The SUMAS technique may, in these cases, bridge the gap between different appropriative categories, categories that are often studied separately.

REFERENCES

Berlyne, D.E. 1960. Conflict, Arousal and Curiosity. New York: McGraw-Hill.

Boerwinkel, H.W.J. 1986. Cultuur, psychologie, omgevingsvormgeving en zelfoverstijging (Culture, psychology, environmental design, and self-transcendence). Wageningen (Neth.): Agricultural University, Ph.D. thesis.

Boerwinkel, H.W.J. 1995. Management of Recreation and Tourist Behaviour at Different Spatial Scales. In: Ashworth, G.J. and Dietvorst A.G.J. (eds.), Tourism and Spatial Transformations. Wallingford (UK): CAB International. Pp. 241-263.

Boerwinkel, H.W.J. 1996. Changing aesthetics for appropriation, and assessing it accordingly: the SUMAS scale. Paper presented at the Second International Conference on Environmental Aesthetics at Lusto, Punkaharju, Finland, 10-13 June 1996.

Boerwinkel, H., Vegter-Frankhuisen, H. and Boekestijn, C. 1969. Taakrelevantie, man-vrouw verschillen en het zwichten voor een fout meerderheidsoordeel (Task relevance and yielding for a wrong group majority judgement). Amsterdam: Free University, Laboratory of Social Psychology.

Boerwinkel, H. W. and Jansen, W.J.A. 1994. CAD-Modelle online bewertet (CAD models evaluated online). *Garten + Landschaft*, 104(10): 21-23.

Brehm, J.W. 1972. Responses to a Loss of Freedom: A Theory of Psychological Reactance. Morristown (N.J.): General Learning Press.

Chombart De Lauwe, P. 1976. Appropriation of space and social change. In: Korosec-Serfaty.P (eds.) 1976. Appropriation of space. Proceedings of the Strasbourg Conference. Paris: U.E.R. des Sciences du Comportement et de l'environnement. Paris: Université Louis Pasteur. Pp 23-45.

Defares, P.B. and van der Werff, J.J. 1968. Psychologische afstand tussen personen (psychological distance between persons). Assen (Neth.): Van Gorcum.

Defares, P.B. and van Praag, E. 1969. Het meten van dogmatisme (Measuring dogmatism). *Sociologische Gids* 16(4): 247-254.

Hall, E.T. 1966. The Hidden Dimension. Garden City (New York): Doubleday.

Ham, R.I.J.M. van der 1972. Voorlopig verslag van een onderzoek naar de beleving van het landschap met behulp van groepswaarnemingen (Provisional report of a study on landscape experience using group perceptions). Wageningen: Agricultural University, Dept. of Psychology, Master thesis.

Horney, K. 1945. Our Inner Conflicts. New York: Norton.

Konijnendijk, C. 1997. A theoretical approach to conflicts in urban forest policy-making. In: Solberg, B and Miina, S. (eds.) Conflict Management and Public Participation in Land Management, International Conference, Joensuu, Finland, 16-21 June 1996.

Kruf, J.P. and van Sambeek, W.F.A.M. 1982. Boswaardering en bosbeheer. Forest valuation and forest management. Wageningen: Agricultural University, Dept. of Psychology, Master thesis.

Lewin, K. (D. Cartwright Ed.) 1951. Field Theory in Social Sciences. New York: Harper & Row.

Milliano, J.E.M. de and van Sambeek, W.F. 1986. Sportvissers en plankzeilers. Een onderzoek naar conflicten en maatregelen (Anglers and surfers. A study of conflicts and measures). Wageningen: Agricultural University, Reports of the Centre for Recreation Studies, number 5.

Raemaekers, H.M. 1983. Ontwikkeling in agrarische organisaties: organisatie-ontwikkeling in standsorganisaties en coöperatieve verenigingen (Developments in agrarian organizations: organization development in farmers' organizations and cooperatives). Wageningen: Agricultural university. Ph.D. thesis.

Rokeach, M. 1960. The open and closed mind. New York: Basic Books.

Swaaf, A.B. de. 1971. Enige trainingseffekten (Some training effects). Amsterdam: Free University, Dept. of Social Psychology, Master thesis.

AN APPLICATION OF NUMERIC DECISION ANALYSIS ON PARTICIPATORY FOREST PLANNING: THE CASE OF KAINUU

Jouni Pykäläinen
University of Joensuu, Faculty of Forestry, Finland

Teppo Loikkanen
Forest and Park Service, Finland

ABSTRACT

A numeric method of decision analysis was applied in participatory strategic level planning of natural resources management in Kainuu by the Finnish Forest and Park Service. The decision analysis was a part of a wider participation process where citizens and interest groups participated in the planning process. The goal of the numeric decision analysis was to produce decision support for the development of a forest strategy. The decision analysis procedure was not the only source of decision support. All participatory feedback was taken into account. The means for applying the numeric decision analysis method and the experiences received are presented in this paper. The actual forest strategies developed during the planning process are not explained in detail nor compared with each other for their betterness; thus no strategy will be recommended in this paper. The decision analysis method was applied according to the approach and guidelines developed for forest planning in the University of Joensuu and the Finnish Forest Research Institute.

Key words: Decision analysis, forest planning, participatory planning

1. INTRODUCTION

The preferences of the decision maker, the citizens and other stakeholders should be meaningfully taken account in participatory forest planning. Furthermore, the participants should have real opportunities to realize the effects of their participation. These goals have proved to be difficult to achieve in practical forest management planning. Problems are caused by complex relationships between different forest uses and the multitudity of various goals and their impacts on forest resources. Numeric decision analysis is an approach to manage this complexity in forest planning. It offers a remarkable opportunity to integrate participation with decision making in multi objective environment.

Birger Solberg and Saija Miina (eds.)
Conflict Management and Public Participation in Land Management
EFI Proceedings No.14, 1997

A method of numeric decision analysis was applied in the participatory strategic level planning process of national forests in Kainuu region managed by the Finnish Forest and Park Service (FPS). The decision analysis method applied is based on *multi-attribute utility theory* and *analytic hierarchy process*. A software called HIPRE was applied as a decision support system (Hämäläinen and Lauri 1995).

The application of the decision analysis method under our focus was a part of a wider participation process where citizens and interest groups participated in the planning through public meetings, phone, open houses, working groups, letters and questionaries. The parties involved in the numeric decision analysis included the FPS, one regional and four local working groups (including 10-12 interest groups each) and citizens. The whole participation process is introduced by Loikkanen and Wallenius (1997).

The formulation of the forest strategy of Kainuu was based on the national and regional objectives of the FPS and the goals and objectives of interest groups and citizens living in Kainuu. The function of the decision analysis was to produce comprehensive decision support for the formulation and selection of a forest strategy to best meet these needs. Such support could not have been achieved otherwise.

The decision analysis method was applied according to the approach and guidelines developed for forest planning in the University of Joensuu and the Finnish Forest Research Institute. This application procedure and the experiences presented in this paper were not observed nor inquired by means of a scientific research. The paper does not recommend any forest strategy to be adapted as the best one.

2. DECISION ANALYSIS PROCESS

The decision analysis process consisted the following four steps:

1. The decision situation was analysed, the problem was structured and the alternative strategies were defined. This was essentially a qualitative phase.
2. The effects of the alternative strategies on the values of numeric decision criteria were calculated. The MELA-system was applied (Siitonen 1983).
3. The parties' preferences (the interest groups of the regional and four local working groups, citizens and the FPS) were estimated and described as an overall utility function for the Kainuu planning case.
4. The alternative forest strategies developed were evaluated by means of the overall utility function produced in the preceding phase. The HIPRE-software (Hämäläinen and Lauri 1995) was used as a tool in phases 3 and 4.

Initially, four strategies following different scenarios were formulated (phase 1). The goal of the formulation was to map out the feasibility of land use allocations in general and their implications on producing forest use outputs. In the so called "basic strategy", the current principles of land allocation were kept unchanged. In the "business strategy" the FPS' economical goals in Kainuu were emphasised. A "forest recreation" and a "nature conservation" strategy were also produced to emphasize respective goals. In spite of giving different emphasis on varying goals in these strategies, each strategy was considered to be a feasible one, i.e. one which could be technically carried out if

wanted. The impacts of the strategies as measured by a set of numeric indicators were found out through planning calculations (phase 2).

The four initial strategies were used as control devices and for laying the grounds for evaluating new more balanced strategies. Later, in the iterative phase of the decision analysis, several new strategies were produced to better meet the parties needs and other criteria as depicted in the overall utility function (phases 1, 2 and 4). The specified strategy to be adopted will be a good compromise addressing to the goals and objectives of all parties. Such a strategy will fulfill the legal, economical, social, ecological, managerial, physical and technical feasibility as well. The phases 3 and 4 in the decision analysis process are the main focus in this paper. The contents of the strategies, their implications and the specific values in the decision schema are not discussed further.

3. ESTIMATION OF THE UTILITY FUNCTION

3.1 Expertise based utility function

An additive *utility function* was an important tool in the decision analysis. In general, the additive utility function is formulated:

$$U = \sum_{i=1}^{m} a_i u_i(q_i) \qquad (1)$$

where, U is the utility, m is the number of objectives, a_i is the relative importance of objective i, u_i is the sub-priority function of objective i, and q_i is the quantity that the plan produces or consumes the objective variable i.

The additive utility function was applied to calculate the utility values of the alternative strategies on different levels of the decision hierarchy in the case of Kainuu (Figure 1.). For example, the total utility was calculated for alternative forest strategies as a weighted sum of the parties' utilities as follows:

$$U_{tot} = aFPS\ UFPS + aRWGURWG + aLWGULWG + aPUP \qquad (2)$$

The reader is referred to Kangas (1992) for more detailed information on utility functions and their use in forestry decision making.

Formulation of the decision hierarchy (Figure 1.) was the first phase in the estimation of the utility function. The decision hierarchy in Kainuu was formulated interactively by the FPS and the authors who were involved in the planning process as neutral consultants. The comments presented by the stakeholders in the regional and local working group meetings were also taken into account in this formulation process.

The decision hierarchy consisted of six levels (Figure 1). The levels (from left to right) were (1) the overall goal for forest management in the planning area, (2) the parties, (3) the criteria (i.e., four main goals) for forest management, (4) the subcriteria (5) the indicators for the criteria and subcriteria and finally (6) the alternative forest strategies.

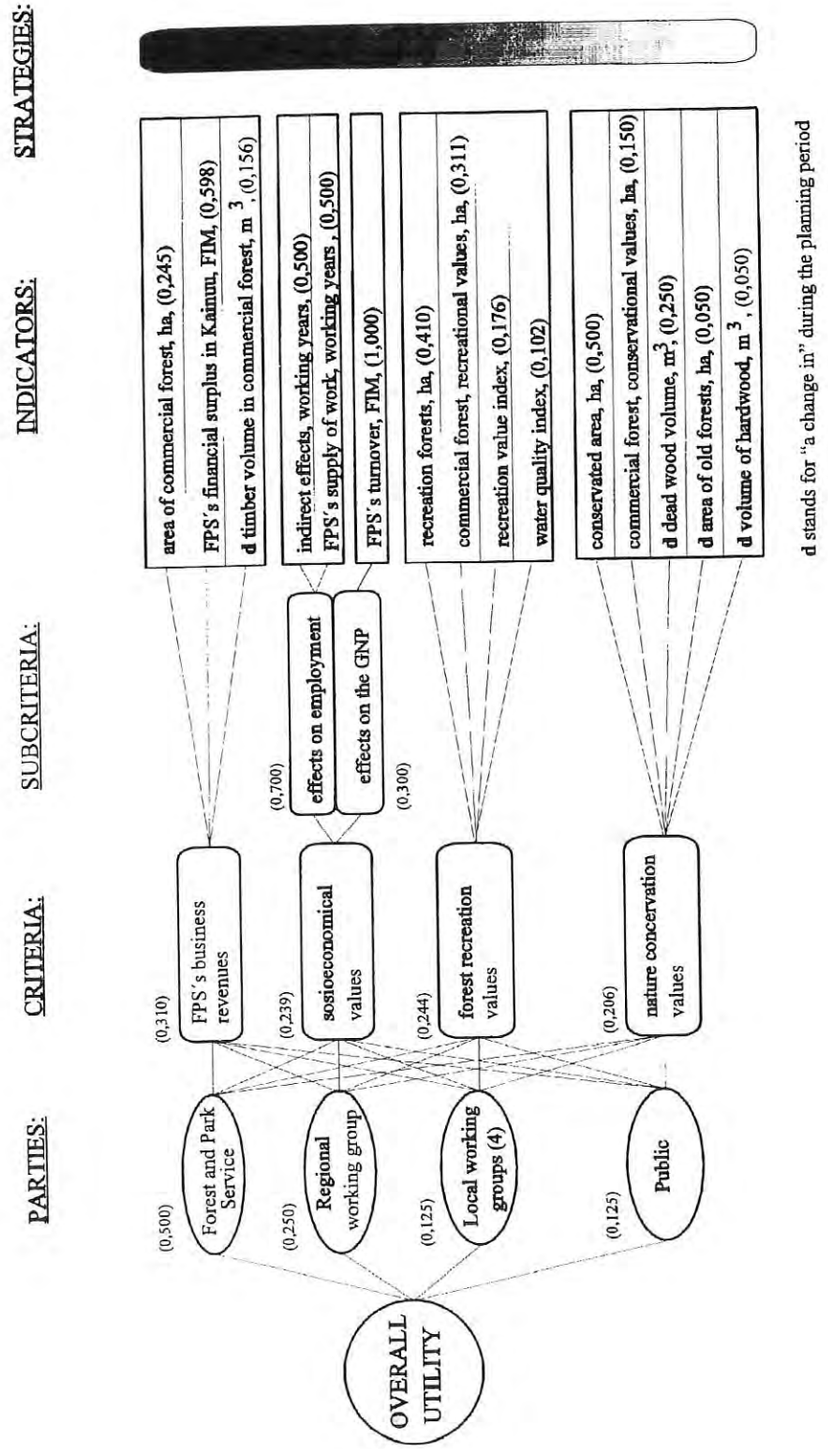

Figure 1. The decision hierachy applied by the FPS in the decision analysis process in Kainuu region. The values in brackets comprise the local weights for the decisions elements.

The overall utility was set as the overall goal for forest management in Kainuu region. The overall utility in turn consisted of parties' utilities summed together.

According the utility model, the parties' utilities consisted of four main criteria defined for forest management in the area. These criteria included (1) the FPS's financial goals including future opportunities for timber production in Kainuu region, (2) socioeconomical values within the region, (3) forest recreation values and (4) nature conservation values. Socioeconomical values were further divided into subcriteria consisting of employment opportunities and the financial impacts utilizing state forest have on the GNP of Kainuu.

The criteria and subcriteria were further defined by quantitative indicators and partial utility functions were estimated for each indicator (Figure 2.). By means of these partial utility functions, the indicators measured in different units (m^3, FIM, ha, etc.) could be made comparable. To be more precise, the absolute value of each indicator was transformed to a relative utility value. Technically, the partial utility functions were formulated by the FPS's experts by using the HIPRE software.

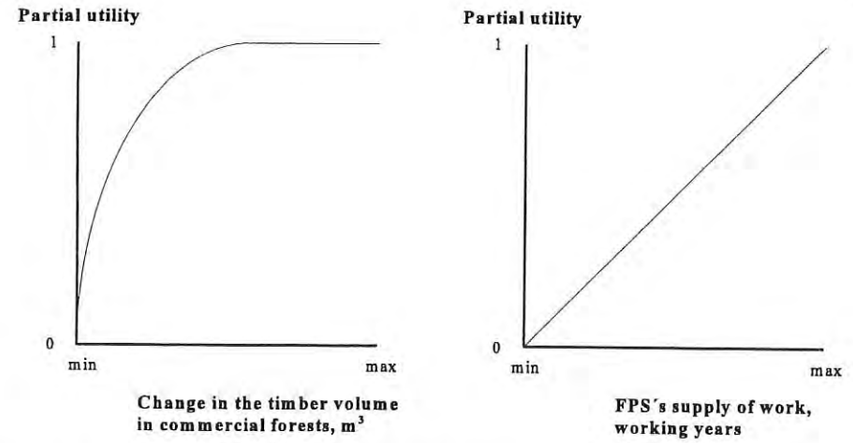

Figure 2. Examples of partial utility functions.

The indicators were weighted after the formulation of the decision hierarchy and the estimation of the partial utility functions. Pairwise comparisons according the principles of the AHP, graphical evaluation and direct numeric evaluation were used as technical means in the weighting process.

3.2 Participatory weighting process

An opportunity to take part in the decision analysis was offered to the members of the regional and the local working groups. Asking (1) the weights for the criteria and subcriteria as specified with indicators and (2) the importance of the parties provided a meaningful opportunity for participation in the decision analysis.

The method of decision analysis was demonstrated and it´s applicability was discussed thoroughly with the regional working group. Comments received were taken into account by the FPS and consultants in formulating the overall utility model. For example, the socioeconomical criteria for the state forest management was presented to be included in the utility model by the interest groups in the regional working group.

The members of the regional working group participated in the decision analysis via interactive planning sessions which were scheduled separately with each interest group member. The participants and the consultant (i.e., facilitator) worked together to find the weights which best met each participants´ and their representative interest group´s preferences.

Members of the local working groups participated through an inquiry where one hundred points was to be divided among the four criteria and among the four parties involved. Interactive planning sessions were not arranged. Nevertheless, the decision model and the implications of different weightings of the criteria were demonstrated to the local working groups before the inquiry.

The preferences of the general public were also incorporated in the decision analysis. First of all, public opinions and comments received through phone, open houses, public meetings, letters and questionaries were written down, classified and analysed. Secondly, the weights for the criteria against this input were evaluated by a neutral consultant and approved by the FPS.

The forest strategy to be developed should be based on the national and the regional obligations and goals set for the FPS and the regional goals and objectives of the local interest groups and citizens. This was taken into account by the FPS in defining its´s weights for the criteria, the indicators and the parties.

4. EVALUATION OF THE STRATEGIES

The overall utility function was formulated by integrating the parties´ weightings for the criteria and the subcriteria. The parties´ importances for each other defined by the working groups were not included into the decision model as such. The FPS defined the final weights based on these assessments, as was initially agreed upon.

The overall utilities for the alternative forest strategies were calculated by using the overall utility function. The same overall utility function was also used for evaluating new iteratively produced strategies.

The forest inventories, the planning calculations, the prediction of the future (timber price and costs related to other factors of production, forest health etc.), as well as, the estimation of the utility function included many sources of uncertainty. Partly it was taken into account through sensitivity analysis, where changes in the weights of different decision elements could be subsequently examined. For example, the effects of changes in the weights of the decision criteria and the parties´ importances were demonstrated (Figure 3).

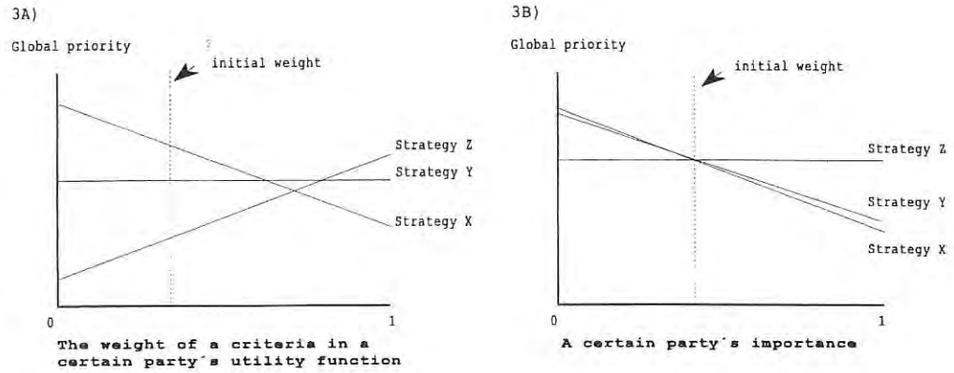

Figure 3. Examples of sensitivity analysis.

5. DISCUSSION AND CONCLUSIONS

The numeric decision analysis method applied in the planning process was a novel planning tool for forest managers, stakeholders and citizens involved. Many questions and critical comments were presented and discussed in working meetings. Firstly, the numeric approach itself was criticised. Social, recreational and conservational values and goals could not be described numerically according to some participants. Secondly, for some participants the method was too simplifying. For example, it was argued that different aspects of biodiversity could not be meaningfully included in the decision analysis. Thirdly, possibilities to manipulate the participants through the decision analysis were claimed. And fourthly, difficulties to understand the method were observed. Much of this criticism holds true; to a great deal it can also be addressed through the decision analysis process itself and more participant-oriented communication (i.e. less jargon).

On the other hand, many benefits were achieved through the numeric decision analysis. Firstly, the problem definition and the concepts were clarified in the hierarchical formulation of the decision model. Each criteria had it´s numerical indicators, and the meanings of the indicators were clearly defined. Open and

meaningful discussions were held before and during the formulation of the decision model. It was very useful to clarify what factors could be incorporated into the decision tree (i.e., what we know or can measure and predict) on the other hand, and on the other hand what factors should be included in the model. Secondly, the preferences of the interest groups were meaningfully included in planning which is one of the main criteria for effective participation. Furthermore, the participants could notice the effects of their participation. To understand and learn about the tradeoffs between the criteria and the indicators under different weighting schemes was a broadening process of one´s view for most participants. Thirdly, uncertainty was integrated into the decision analysis through sensitivity analysis. And last but not least, the decision analysis was a learning process where all parties - including the analysts - learned much about strategic decision making in practical forestry.

Multi objective decision making in forestry is always a very challenging task. Therefore, the decision analysis methods to address it can not be a very simplistic one. In the case of Kainuu, the complexity of participatory forest planning on strategic level was realized through applying the decision analysis method. But this complexity was not only revealed, it was also analysed, and more over, tackled, which was made possible only by integrating modern forest planning methods with the latest social science knowledge on participatory planning and decision making. As a result a well argued proposal for the best forest strategy could be presented, which would have been a much more difficult if not impossible task to achieve without the decision analysis.

REFERENCES

Hämäläinen, R. and Lauri, H. 1995. Hipre 3+ Users Guide. Systems Analysis Laboratory. Helsinki University of Technology. 94 p.

Kangas, J. 1992. Metsikön uudistamisketjun valinta - monitavoitteiseen hyötyteoriaan perustuva päätösanalyysimalli. Summary: Choosing the regeneration chain in a forests stand: a decision analysis model based on multi-attribute utility theory. University of Joensuu, publications in sciences. No: 24. 230 p.

Loikkanen, T. and Wallenius, P. 1997. Public participation in Finnish Forest and Park Service: experiences from the regional natural resource planning process in Kainuu. In: Solberg , Band Miina S. (eds.). Conflict Management and Public Participation in land Management. International Conference, 16-21 June 1996. Joensuu, Finland. EFI proceedings 14.

Siitonen, M. 1983. A long term forestry planning system based on data from the Finnish National Forest Inventory. University of Helsinki. Department of Forest Mensuration and Management. *Research Notes* 17: 195-207.

CAUSES OF CONFLICTS AFFECTING URBAN FOREST POLICY-MAKING: A THEORETICAL APPROACH

Cecil C. Konijnendijk
Wageningen Agricultural University
The Netherlands

ABSTRACT

In a highly urbanised society, such as can be found in large parts of Europe, urban forests are essential for recreational, environmental and other purposes. Today, policy-makers, planners and managers responsible for forests in or nearby urban areas have to deal with a higher, more varied and better expressed demand for urban forest functions, in a time of growing pressures. Social conflicts are often affecting and frustrating urban forest policy processes. In order to gain insight into the causes of these conflicts, literature, as well as cases of public action and public participation regarding urban greenspace - and urban forests in particular - were analysed from an environmental psychological perspective. As a result, a theoretical framework which is believed to provide better insight into the often close psychological relationships between people and urban forests has been developed. Using this theoretical approach, the frequency and intensity of social urban forest conflicts in Europe can be partly explained by the often close psychological relationships between urban dwellers and (parts of) urban forests in or near their living environment. Better insight in these relationships is believed to assist policy-makers in future conflict prevention and resolution.

Key words: Urban forest, forest policy analysis, social conflicts, environmental psychology

1. INTRODUCTION

Large parts of Europe have become highly urbanised. Rural areas, together with their forests, have often become incorporated into urban areas. Forests that have become part of dense human settlements, together with the forests that have been planted near urban settings, are not only characterised by an intensive (recreational) use, but often also by a high level of public involvement in issues related to these forests (Miller 1988, Konijnendijk 1996).

Birger Solberg and Saija Miina (eds.)
Conflict Management and Public Participation in Land Management
EFI Proceedings No.14, 1997

The European urban forests, of which Paris' Fontainebleau, Berlin's Grunewald and London's Epping Forest are well-known examples, often have a long and lively history which demonstrates the involvement of urban dwellers with 'their' forests. Public actions have arisen in many cases as a consequence of conflicting objectives and intentions of different stakeholders, and in particular with policy-makers and managers on one side and the public on the other (see for example: Hennebo 1979, Opheim 1984, Konijnendijk 1995a, Trébucq 1995).

The emergence of social conflicts over urban forest use and management can be illustrated by introducing one specific case-study, which is that of the Mastbos, an urban forest near the Dutch city of Breda. In autumn of 1994, visitors and people living nearby heard the noise of chain saws in the forest. According to one person, 'the forest was weeping'. The State Forest Service - responsible for forest planning and management - had started regeneration cuts according to their management plan. People were angry because they had not been notified about these fairly large-scale cuts in their 'backyard'. A period of intensive actions followed, led by a small group of people living in houses next to the forest, demonstrating the feeling that the Mastbos belonged to them and the people of Breda. Some of them stated that they had been visiting the forest since they were children. As a result of these actions, negotiations were started and the Forest Service agreed to some compromises. The inhabitants of Breda, united in the 'Friends of the Mastbos', are now actively involved in policy-making, planning and actual management measures, such as thinning (Konijnendijk 1995b).

In this paper, an attempt is made to provide insight into the contemporary problems - with a special focus on social conflicts - European urban forest policy-makers are facing while trying to meet societal demands for urban forest functions. A conceptual framework for analysing and understanding the close psychological relationships between people and urban forests based upon environmental psychological theory will be presented. It is believed that these relationships and insufficient understanding of them in fact contribute to social conflicts concerning urban forests.

2. PROBLEM ANALYSIS

Pressures posed upon urban forests

Today, forests in and near urban areas are under a heavy, especially societal, pressure. The most important process causing this pressure has been *urbanisation*. It is predicted that beyond the year 2000, more than 50% of the world population will live in cities (Netherlands Committee for IUCN 1994). In large parts of Europe, the urbanisation rate is already very high; the majority of the European population lives in urban settings (see: Konijnendijk 1996). The historical, structured distinction between city and countryside has disappeared (Kleefmann 1984). As urban areas have expanded, the demand for nearby urban forests as recreation areas has increased. This means that pressure on existing urban forests will continue to grow, and that there will be an increasing need for more urban forests. In the Netherlands for example, efforts are

undertaken to enlarge the forest area near urban areas with 15,000 hectares before the year 2040 (Dutch Ministry of Agriculture... 1993). Other countries in Europe have also expanded their forest area over the past decades, and continue to do so (see for example: Hummel and Hilmi 1989, Hansen and Jensen 1992, Hodge 1995). On the other hand, the continuing process of urbanisation has also led to land allocation problems: conflicts between often incompatible types of land-use are intensifying (see for example: Madas 1984).

Other important developments regarding the population in Europe affecting urban forests, have been the growth of the *per capita income, in combination with an increase in leisure time and mobility*, especially after the Second World War (Veer 1987, Volk 1995). These developments have led to an increased demand for recreational facilities. Urban forests have become very important and intensively used recreational settings.

In addition, other relevant developments have to be mentioned. First of all, the limits of economic growth in Europe, which for long had seemed to be inexhaustible, have come in sight. Public and private insitutions have been reconsidering their expenses, as more activities have to be covered with an uncomparably increasing amount of funds. *Priorities have to be reconsidered*, and for urban forests this often means that *less money is available* for planning and management, and for the expansion of the urban forest area. That often a relatively low priority is given to many urban forests when it comes to policy-making, can largely be explained by the fact that urban forest functions are not yet sufficiently put into monetary terms (see for example: Miller 1988, Tyrväinen 1996).

Environmental depletion also has its influence on urban forests. Forests throughout Europe are seriously affected by air pollution (Westoby 1989). In urban and industrialised parts of Eastern Europe for example, extensive forest areas are threatened. Another result of the environmental deterioration can be seen in Southern Europe, where forest fires also effect forests near urban areas.

Public pressures

The role of the public at large in urban forest policy-making has been changing, partly as a reaction to the pressures as described before. A relevant development is the process of *democratisation* (see for example: Grayson 1993, Beckley and Korber 1995). Regarding urban forests, this process implies that urbanites want to participate in the various stages of policy-making processes. Institutions responsible for urban forests experience serious problems to legitimate their decisions (Stankey 1996), as they are used to a traditionally low level of public involvement in policy processes (Beckley and Korber 1995). Public participation in forestry has been traditionally focused on sharing information about decisions already made, or, at best, on promoting decisions (Wondolleck 1988 and Daniels 1992, in: Loikkanen 1995).

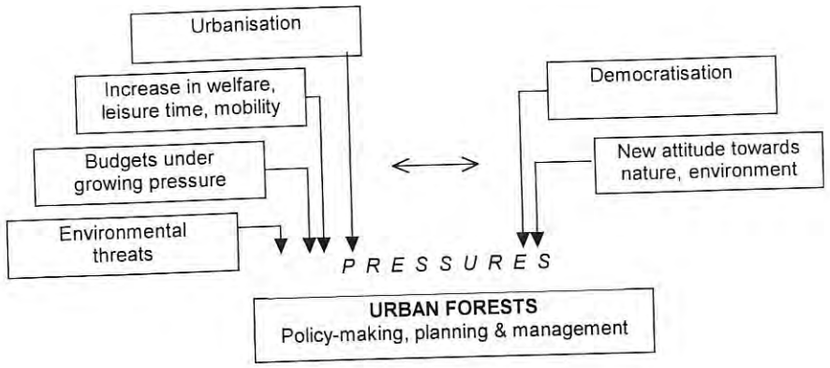

Figure 1. Pressures posed upon urban forest policy-making, planning and management.

The sixth important development is the still continuing process of *growing public awareness about environmental depletion*. The public has become more aware of environmental threats, as well as of environmental issues in general (Grayson 1993, Caldwell et al. 1994, Stankey 1996), and it has been expressing a demand for more 'natural' forests (Kaplan and Kaplan 1989, Volk 1995), serving environmental purposes, and dealt with by applying a more holistic approach (Westoby 1989, Beckley and Korber 1995).

Effect on policy-making processes

In urban forest policy-making, an optimal combination between - societal - demand and resource has to be found, in a time of increasing pressures imposed on the process. The developments described above had, and have, their effect on urban forest policy-making processes (see Figure 1).

First of all, there is a higher demand for urban forest, as there are more urban people with more leisure time to spend. The major demand from urban society is for a wide range of recreational opportunities (see for example: Madas 1984 Dutch Ministry of Agriculture... 1993, Tikkanen 1995). This demand has become more diverse, also because of the development and dispersal of a new nature and environmental attitude (Veer 1987, Boerwinkel 1992, Beckley and Korber 1995). On the resource-side, policy-makers are dealing with many urban forests that have aged physically, often as a result of (improper) management in the past, as well as in terms of use: today's demand for urban forests is not the same as yesterday's demand (Konijnendijk 1996). The area of urban forest available is generally small compared to the number of (potential) users. Also, because of the high prices of land in and near urban areas, the

safeguarding of urban forests is often difficult, as other forms of land use, such as housing and industrial purposes, seem to be more profitable for the land owner (Madas 1984).

The process of democratisation has resulted in the fact that people express their wishes in every possible way, and do not take decisions of those responsible for granted. Insufficient opportunities for participation have contributed to the public's growing suspicion towards decision-making, resistance against policy and management measures (legitimacy problems), and a growing amount of escalating social conflicts (Wondolleck 1988 and Daniels 1992, in: Loikkanen 1995, Beckley and Korber 1995, Hellström and Reunala 1995, Stankey 1996). Especially the rejuvenation of Europe's urban forests has been obstructed by this, often because proper communication between those responsible and the urban population has been absent (Miller 1988, Konijnendijk 1995a).

Consequently, urban forest policy-makers in Europe have to deal with this high, diverse and outspoken societal demand for urban forest functions, as well as with environmental pressures on the urban forest, in a time where their budget is under pressure more than ever.

An essential incentive for forest policy making is created by the so-called 'forestry conflicts', as we have seen. According to Hellström (1995), forestry conflicts "reflect structural imbalances within the values and policies related to forestry, and within the use of forest resources." Floyd et al. (1996) see social conflicts over forest resources (in the USA) as inevitable, given the rapidly expanding population, relatively fixed resource base, and a lack of broad social consensus about the roles of our forests in the next century. According to Stankey (1996), differences in values, perceptions and objectives between various stakeholders are the cause of conflicts. Often, they will result from differences in opinion about the demands forest resources should meet; various actors hold different ideas about the objectives of forest policies (see above), as well as about the way in which these objectives should be realised. Social conflicts between actors involved in urban forestry are believed to be significantly frustrating urban forest policy-processes. The examples of, often major, conflicts about how urban forests should be used, planned and managed are numerous (see for example: Opheim 1984, Guérin 1989, van Rooijen 1990, Konijnendijk 1995a, Trébucq 1995).

A question relevant to those involved in urban forest policy-making, planning and management is: Why are social conflicts regarding urban forests often so intensive and frequent? The hypothesis which forms the basis of this paper is that - apart from the fact that urban forests are simply used by a greater number of people than other forests, and that these people hold and express many and often conflicting values regarding these forests - an important underlying cause for urban forest conflicts exists in the often close (psychological) relationships urban dwellers have with the forests in or near their towns.

3. A THEORETICAL APPROACH TO URBAN FOREST CONFLICTS

Defining urban forests

First, the definition of urban forests, as used in this paper has, to be elaborated. Here, focus will be on forests - associations of plans and animals in which trees are the determining aspect (Dutch Ministry of Agriculture... 1993) - in or near urban areas (Konijnendijk 1996), in contrast to the North-American approach in which urban forests range from individual street trees to urban fringe forests (Miller 1988). The next question that arises after this is: When can a forest be defined as 'urban' and when not?

For the purpose of the ongoing research 'Urban forestry: overview and analysis of European urban forest policies' (Konijnendijk 1996), the concept of urban forests has been described from the point of view of policy processes aimed at defining which functions of these forests should be favoured. This concept is useful in the context of this paper, as urban forest conflicts arise from differences in values, perceptions and objectives held by various actors. These differences play an important part in urban forest policy-making.

An important determining factor of urban forest policy-making is related to the actors involved in the process. A systematic model of urban forest policy-making processes has been developed, based upon theories of systems science (see for example: Checkland and Scholes 1990) and forest policy analysis (see for example: Ellefson 1992, Cubbage et al. 1993). This theoretical model has been named 'Urban Forest Policy Model' (UFPM, see Figure 2) and it serves as a framework for systematically analysing and comparing urban forest policy processes.

When analysing urban forest policy-making using the UFP-Model, two most influential groups of actors can be determined: the local urban public and the local government. As we have seen, urban dwellers often have a close relationship with urban forests in their neighbourhood or city (see for example: Kaplan and Kaplan 1989, Konijnendijk 1995a). This relationship can explain the wish to be involved and consulted in policy processes affecting urban forests can be explained. This, and the fact that there is a large potential of urbanites living close to urban forests available, make the influence of the local public on the urban forest system often significant. Local governments can be seen as the other major actors in urban forest policy-making. Throughout the ages, local administrations have tried to gain influence in urban forest policy-making in order to safeguard the benefits urban forests provided to the local community (see: Hennebo 1979, Guérin 1989, Konijnendijk and Vlasman 1993, Slabbers et al. 1993). One way of extending their influence was by trying to obtain the ownership of urban forests. In other cases, influence had to be established in the policy process (Konijnendijk 1996).

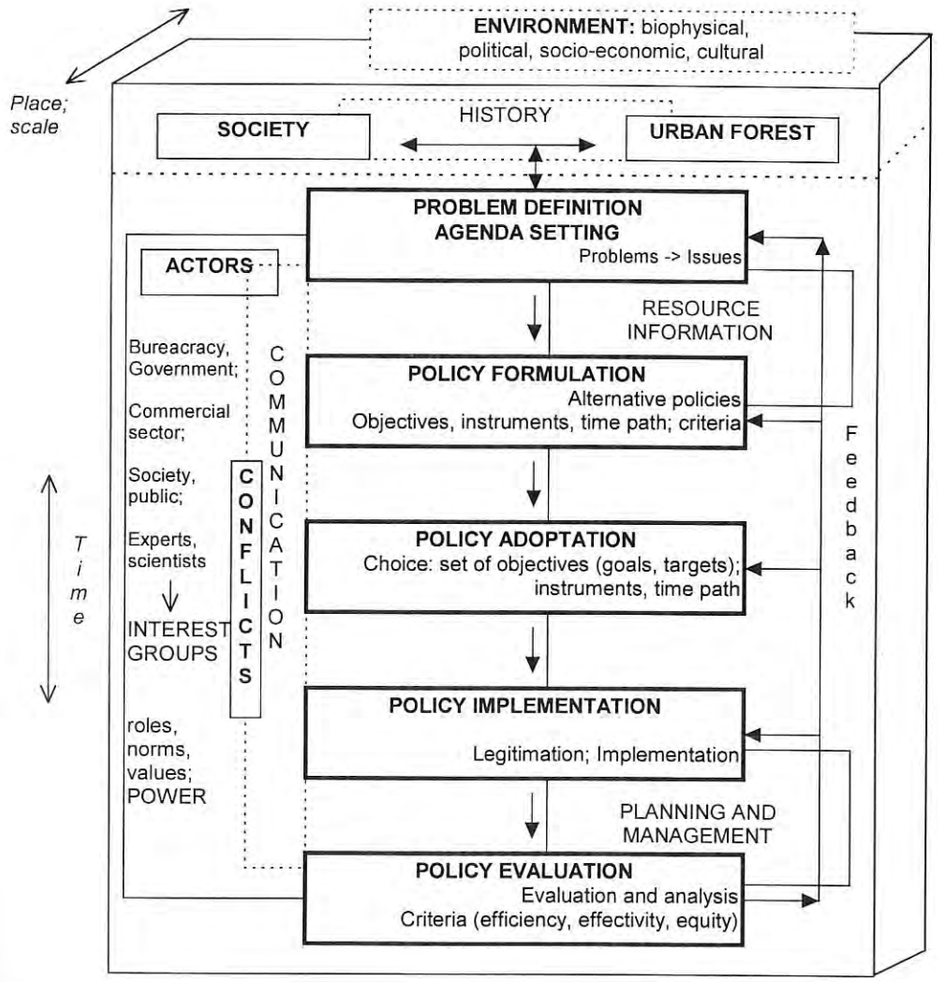

Figure 2. The Urban Forest Policy Model (from: Konijnendijk 1996).

Thus, in contrast to policy-making regarding forests in general, the policy arena (Wilson and Morren 1990) in urban forestry is primarily local. Ongoing processes of decentralisation (see for example: Hummel and Hilmi 1989, Grayson 1993) will only enforce this local emphasis. Therefore, the definition of urban forests used in this paper is: Urban forests are forests in, next to or nearby a specific urban area, of which the decision-making process on desirable functions is dominated by local actors and their objectives.

In Table 1, the main characteristics which distinguish urban from rural forests are summarised. Of course, many forests cannot be seen as purely 'urban' nor 'rural'; a continuum between the two extremes exists (Miller 1988).

Table 1. Characteristics distinguishing urban from rural forests (From: Konijnendijk 1996).

Private Characteristic	Urban forest	Rural forest
Geographical location	In, next to or nearby urban centre.	In rural area, more distant from urban centre.
Ownership and structure	Ownership - in terms of actor categories - often very diverse; properties small, fragmented.	Ownership less diverse; larger properties, less fragmented.
Facilities	High level of (leisure) facilities, especially in those areas closest to urban centres.	Lower level of (leisure) facilities.
Actors in forest policy *process*	Dominance of local actors (government, public).	Usually no dominance of local actors in the sense of government of public at large; national and regional policies of higher importance.
Use, objectives of actors involved	Recreation, environmental protection most important; wood production of secondary importance.	Recreation not so dominant; wood production of primary importance.
Social conflicts	Frequent and often intense because of large variety of stakeholders and close ties between people and urban forests.	Mostly less frequent and less intense.
Policy instruments	Primary importance of public relations, information and consultation; input of monetary means per hectare high.	Importance of public relations, information and consultation not as important as for urban forests; input of monetary means per hectare low.
Time perspective, dynamics of policy processes	More influenced by (local) politics and by high pressures (uses, alternative land-use); high dynamics.	Long term aspects more important; lower dynamics of policy processes.

Analysis from an environmental psychological perspective

As stated before, our hypothesis is that one of the important underlying factors of urban forest conflicts - causing them to be frequent and intensive - are the close (psychological) relationships between urban dwellers and urban greenspace in their living environment. Insight into the relationships between urban dwellers and urban greenspace is believed to be obtained by studying them from an environmental psychological perspective.

Gifford (1987) gives the following definition of environmental psychology: "*Environmental psychology is the study of transactions between individuals and their physical settings. (...) In these transactions, individuals change the environment and their behaviour and experience are changed by the environment. Environmental psychology includes research and practice aimed at using and improving the process by which human settings are designed.*" Thus, in environmental psychology the interrelationships between people and their physical and social environments can be considered the central issue. People come to a certain behaviour by 'negotiating' between their own desires and experiences, and external stimuli. *Transactions* between people and the environment are the result. Relationships with the environment can be strengthened or weakened.

Transactions take place on different levels (Boerwinkel 1992 and 1997). First of all, there are the so-called *explorative* transactions, which are not intensive and which are aimed at observation and interpretation of the observed. Secondly, there are *instrumental* transactions, during which objects and spaces are 'used' (e.g. for orientation, going to work). The third level of transaction is important for this paper: *existential* transactions are intense and have their effect on the identity of the people. Human needs, such as those for 'privacy' and 'safety', are related to these transactions. Finally, there are transactions on the level of the *basic cultural attitude*, related to the values and beliefs society has as a whole. The basic cultural attitude is important when looking at the development of environmental and nature conservation movements, and the growing awareness of environmental depletion (Boerwinkel 1992).

Existential relationships between people and their environment are most relevant in the light of this research. Proshansky et al. (1983) define the concept of *'place-identity'*: individuals can have a strong, emotional relationship with certain places or environments. These places and environments have become an integral part of people's identity. Therefore, emotional reactions can be expected when these places or environments (or objects, such as trees) are under threat.

We mentioned above the *social context* in which transactions between people and the environment take place. Boerwinkel (1992, 1996) distinguishes between three types of socio-physical spatial definitions. First of all, there are *places*: spatial situations with objects and perhaps people, with which a person develops a certain relationship (by transaction), without emphasis on possibly present social aspects. These places are important for the individual existential relationships between people and environments. Secondly, there are *social territories*: spatial situations with which a person develops a certain relationship, closely related to the relationship of other people with these situation; people with whom the person has a more or less close relationship. Together,

people of one social group can come to a joined territorial definition, for example, concerning a certain type of greenspace, which becomes an integral part of their territory. Finally, there are *extra-territorial areas*: spatial situations with which a person develops a certain relationship, but which are experienced by the person as being related to the relationship between other people and the situation. The person does not have a personal relationship with the others (different social group), and feels like being their 'guest'.

Analysing environmental psychological relationships between people and urban greenspace

Urban greenspace, of which urban forests form an essential element, can be seen as a special type of environment with which people can have transactions. The not so extended research on this matter affirmed the hypothesis that existential relationships between people and urban green do exist. Everywhere, urban green is seen as an essential part of the living environment. Especially those parts of the urban greenspace which are close to one's own home are often highly appreciated and frequently used (Boerwinkel 1992, Konijnendijk 1995a).

When relationships are built on an existential level, individually or within a social group, a high degree of commitment towards these greenspaces can be expected. This commitment is expected to result in the willingness to participate in the policy-making process (public hearing, participation), in planning and management, or in public actions when policy decisions or management measures are seen as a threat to the 'beloved' greenspace (park, urban forest, line of trees, individual tree; see Figure 3).

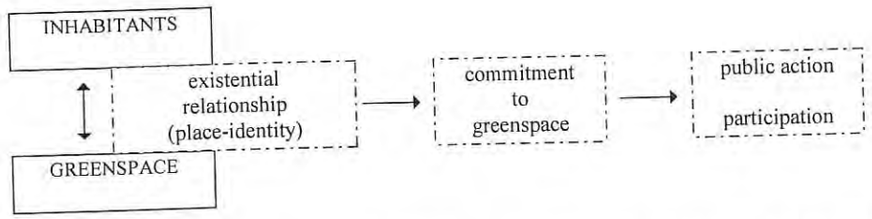

Figure 3. Expected link between existential relationships between inhabitants and urban greenspace, and their involvement in public action and/or participation (from: Konijnendijk 1995a).

To investigate the concept of existential relationships between people and urban greenspace, Konijnendijk (1995a) analysed, mainly from literature, 18 examples of public actions, as well as 13 cases of public participation in greenspace planning and management from the Netherlands and abroad. The cases were (qualitatively)

evaluated and analysed using a checklist and a derived list of characteristics which were thought to be essential for existential relationships (including social aspects, persistence of action and participation, initiative taken).

From the analysis, the existence of an existential relationship became plausible in some cases, as the initiative for public actions and participation was often taken by individuals or by small groups of people (family, neighbourhood) with an obvious close, personal relationship with the urban green. The sometimes emotional actions of these people, and their persistence, support the theory that existential relationships do exist at an individual level.

Many actions and most participation projects clearly seem to encompass an important social aspect. Groups of inhabitants want to undertake action for 'their' green together. Actions are often initiated by a small group of people, not seldom a family. When this family is able to 'lift' the action to a higher social level, for example the neighbourhood, the success of the action seems to be more likely, and the social process involved becomes more important. Together, groups of inhabitants include or have included parts of the urban greenspace in their social territory. By doing so, they also strengthen their own social structure.

Existential relationships with urban forests

As urban forests are often seen as an essential element of urban greenspace (see for example: Dutch Ministry of Agriculture... 1995), it can be expected that causes of social conflicts in urban forestry are comparable to those concerning urban greenspace at large. From literature research (Konijnendijk 1995a) indications of the often close links between local people and urban forests emerge. During a study in the Finnish town of Joensuu (van Konijnenburg en Derks van de Ven 1994) inhabitants of the town were asked how much they would be willing to pay in the hypothetical case that a certain urban forest in their town was in danger of disappearing. More than 25 percent of the respondents said to be willing to pay more than 100 FIM (equals 21.50 USD). Research using the so-called SUMAS-method (a Subjective Motor Affinity-distance Scale developed by Boerwinkel; see for example: Boerwinkel 1992 and 1997), in which respondents were asked to mark their affinity with a certain object or spatial situation on a scale from 1 to 9, also affirmed the existence of existential relationships between people and urban forests. Research in the Dutch town of Arnhem, using the SUMAS-method (Boerwinkel et al. 1982) gave an indication of the psychological importance of three urban forest parks to the inhabitant of some quarters. On a scale ranging from 1 (high affinity) till 9 (low affinity), the urban forest park of Sonsbeek scored an average 3.01. As a comparison: 'my city' scored 2.86; 'the neighbours I can get along with' 3.66; 'the street in which I live' 3.35; and 'the house in which I live' 2.82. In the above mentioned analysis of 18 examples of public action and 13 cases of public participation (Konijnendijk 1995a) were some cases concerning urban forests. At least four examples of public action concerned urban forests according to the definition as given before; in one case of public participation an urban forest was concerned. These cases support the results found for urban dwellers' commitment to urban greenspace in general (Konijnendijk 1995a).

Developing a conceptual framework for urban forest conflict analysis

Based on the research presented above, the following conceptual framework for analysing environmental psychological relationships between urbanites and urban greenspace (Figure 4), based upon the Psycho-Ecological INTerface model by Boerwinkel (1994, pers.comm.), has been developed.

On the right hand side in Figure 4, there is the *urban forest* as a physical environment with which *inhabitants* can have *transactions*. These transactions with the urban forest as physical environment take place in a *social context* (is the urban forest seen as part of *place*, *territory*, or is it seen as *extra-territorial*?), and can take place on various psychological levels, from explorative and instrumental to existential, as well as on the level of the basic cultural attitude. The type of transaction (resulting in '*use*') is, apart from the social context, dependent upon factors such as *perception*, *proximity* (see for example: Boerwinkel 1992) and (historical) *relationship* (Kaplan and Kaplan 1989, Konijnendijk 1995a). The relationship with an urban forest influences the perception inhabitants have of *policy-making and planning* (left) and *management*, as well as their willingness to *participate* in them. The environmental psychological relationships also determine the willingness of the inhabitants to become involved in *public actions*, when the objectives of 'others' (policy-makers, planners, managers, as well as other users) are conflicting with their own. Finally, '*decoding*' (centre part) means the perception and interpretation of the behaviour of 'others'.

This theoretical framework can be seen as a starting point for analysing one of the causes of social conflicts concerning urban forests.

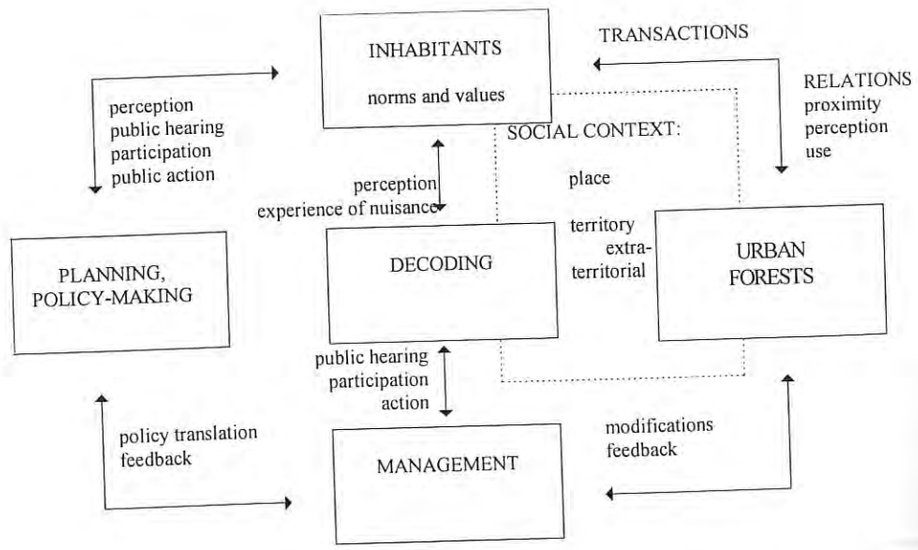

Figure 4. Schematic representation of the assumed most important relations in the context of the commitment of inhabitants towards urban greenspace (From: Konijnendijk 1995a).

4. CONCLUSION

In a time of increasing pressure on urban forest policy processes, it is necessary for the policy-makers to try to avoid serious conflicts between various - often local - stakeholders. As discussed above, conflicts, in which the urban public is involved, do arise from the close psychological ties between (groups of) urbanites and urban forests, the resulting desire to participate in policy-making and management, and the insufficient awareness of this by those responsible (Wondolleck 1988 and Daniels 1992 in: Loikkanen 1995).

A better awareness of, and insight into these close relationships and their consequences is believed to help to prevent serious social conflicts in the future (see also: Floyd et al. 1996, Stankey 1996). The ties between people and urban forests can also be used in a constructive way. For example, by offering the public the opportunity to participate in policy-making, planning and management, budget pressures could be relieved (Konijnendijk 1995a), social control in urban forests might increase (Newman 1972), and a sense of community might be stimulated (Burch and Grove 1993, Sullivan and Kuo 1996).

More systematic and analytic research, for example by using the SUMAS-methodology (Boerwinkel 1992, 1997), will strengthen the theoretical base from which the relationships between people and 'their' urban forests can be explained and predicted.

ACKNOWLEDGEMENTS

The author is grateful to Dr. Henk Boerwinkel and Ir. Freerk Wiersum (Wageningen Agricultural University) for their useful comments and suggestions.

REFERENCES

Beckley, Th.M. and Korber, K. 1995. Sociology's potential to improve forest management and inform forest policy. *Forestry Chronicle* 71(6): 712-719.

Boerwinkel, H.W.J., van Berkel, H.P.M.M., Klüppel, J.E.J. and Slijkerman, A.J.M. 1982. Report on the parks Sonsbeek, Zijpendaal and Gulden Bodem in Arnhem: psychological and social research of use, perception and appreciation. Department of Psychology, Agricultural University, Wageningen. In Dutch.

Boerwinkel, H.W.J. 1992. Environmental psychology: experience of landscape quality. Centre for Recreation and Tourism Research, Agricultural University, Wageningen. In Dutch.

Boerwinkel, H.W.J. 1994. Personal communication.

Boerwinkel, H.W.J. 1997. Assessing conflicts as appropriation failures, and contrasts, with an appropriate scale: SUMAS. In: Solberg, B. and Miina, S. (eds.). International Conference, Conflict management and public participation in land management, 16-21 June, Joensuu.

Burch, W.R. and Grove, J.M. 1993. People, trees and participation on the urban frontier. *Unasylva* 44(173): 19-27.

Caldwell, L.K., Wilkinson, C.F. and Shannon, M.A. 1994. Making ecosystem policy: three decades of change. *Journal of Forestry* 92(4): 7-10.

Checkland, P. and Scholes, J. 1990. Soft systems methodology in action. John Wiley and Sons, Chichester/New York etc.

Cubbage, F.W., Laughlin, J. O' and Bullock III, C.S. 1993. Forest resource policy. John Wiley & Sons, New York (etc.).

Derks van de Ven, M. and van Konijnenburg, P. 1994. Valuation and use of urban forest in Finland. MSc-thesis. University of Joensuu/Agricultural University, Wageningen.

Dutch Ministry of Agriculture, Nature Management and Fisheries 1993. Forest Policy Plan. Den Haag. In Dutch.

Dutch Ministry of Agriculture, Nature Management and Fisheries 1995. Vision on Urban Landscapes. Den Haag. In Dutch.

Ellefson, P.V. 1992. Forest resources policy: process, participants, and programs. McGraw-Hill Inc., New York (etc.).

Floyd, D.W., Germain, R.H. and ter Horst, K. 1996. A model for assessing negotiations and mediation in forest resource conflicts. *Journal of Forestry* 94(5): 29-33.

Gifford, R. 1987. Environmental psychology: principles and practice. University of Victoria. Boston (etc.), Allyn and Bacon, Inc.

Grayson, A.J. 1993. Private forestry policy in Europe. Scottish Forestry Trust, CAB International, Wallingford.

Guérin, J.-C. 1989. Les arbres à Paris. *Revue Forestière Française* (41). L'arbre en ville, special issue: 29-44.

Hansen, J.M. and Jensen, J. 1992. Nature management in Denmark: objectives, results, experiences. National Forest and Nature Agency, Hoersholm.

Hellström, E. 1995. Applying comparative strategies to international studies of forest conflicts. Paper written for the XX IUFRO World Congress, August 6-12 1995, Tampere.

Hellström, E. and Reunala, A. 1995. Forestry conflicts from the 1950's to 1983. EFI Research Report 3. European Forest Institute, Joensuu.

Hennebo, D. 1979. Entwicklung des Stadtgrüns von der Antike bis in die Zeit der Absolutismus. Geschichte des Stadtgrüns, Band I. Patzer Verlag, Hannover/Berlin.

Hodge, S.J. 1995. Creating and managing woodlands around towns. Forestry Commission Handbook 11. HMSO, London.

Hummel, F.C. and Hilmi, H.A. 1989. Forestry policies in Europe: an analysis. Food and Agriculture Organization of the United Nations, Rome.

Kaplan, R. and Kaplan, S. 1989. The experience of nature: a psychological perspective. Cambridge University Press, Cambridge (etc.).

Kleefmann, F. 1984. Planning as goal-searching tool. VUGA, Den Haag. In Dutch.

Konijnendijk, C. and Vlasman, A. 1993. From City Forest to Forest City: development of Dutch urban forests. Unpublished MSc-thesis. Department of Forestry, Agricultural University, Wageningen. In Dutch.

Konijnendijk, C. 1995a. 'Tree cutters will be shot at': an environmental study of the commitment of urban dwellers towards urban green space. Unpublished MSc-thesis. Department of Forestry, Agricultural University, Wageningen. In Dutch.

Konijnendijk, C. 1995b. The Mastbos has found its friends: conflict over future management seems to been solved. *Nederlands Bosbouwtijdschrift* 66(2): 61-67. In Dutch.

Konijnendijk, C.C. 1996. Urban forestry: overview and analysis of European urban forest policies. Part 1: Conceptual framework and European urban forest history. Working Paper. European Forest Institute, Joensuu. In prep.

Loikkanen, T. 1995. Public participation in natural resource management. In: Hyttinen, P., Kähkönen, A and Pelli, P. (eds.). Multiple use and environmental values in forest planning. EFI proceedings 4. European Forest Institute, Joensuu.

Madas, A. 1984. The service functions. In: Hummel, F.C. (ed.). *Forest policy: a contribution to resource development*. Nijhoff/Junk publishers, The Hague/Boston/Lancaster.

Miller, R.W. 1988. Urban forestry: planning and managing urban greenspaces. Prentice Hall, New Jersey.

Netherlands Committee for IUCN, 1994. The Netherlands and the World Ecology. Amsterdam.

Newman, O. 1972. Defensible space: crime prevention through urban design. New York, The Macmillan Company.

Opheim, T. 1984. Notes on the Oslomarka. In: Saastamoinen, O., Hultman, S.-G., Elers Koch, N. and Mattsson, L. (eds.). Multiple-use forestry in the Scandinavian countries. Finnish Forest Research Institute, Helsinki.

Proshansky, H.H., Fabian, A.K. and Kaminoff, R. 1983. Place-identity: physical world socialization of the self. *Journal of Environmental Psychology* 3(3): 57-83.

Rooijen, M. van. 1990. The roots of urban greenspace: a study of the origin of the Dutch Green City. Department of Urban and Labour studies, Rijksuniversiteit, Utrecht. In Dutch.

Stankey, G.H. 1996. Integrated natural resource planning and management: social sciences perspectives. In: Korpilahti, E., Mikkelä, E. and Salonen, T. (eds.). Caring for the forest: research in a changing world. Report (Volume III) of the IUFRO XX World Congress, 6-12 August, Tampere. The Finnish IUFRO World Congress Organising Committee, Jyväskylä.

Sullivan, W.C. and Kuo, F.E. 1996. Do trees strenghten urban communities, reduce domestic violence? *Arborist News* 5(2): 33-34.

Tikkanen, I. and Solberg, B. 1995. Evolution of forest policy science in Finland and Norway. In: Solberg, B. and Pelli, P. (eds.). Forest policy analysis: methodological and empirical aspects. EFI proceedings 2. European Forest Institute, Joensuu. pp. 69-87.

Trébucq, M. 1995. Incidents. *Sauver Fontainebleau* nr. 132; supplement of Télérama nr. 2372.

Tyrväinen, L. 1996. Urban forest benefits and property prices: an application of hedonic pricing method. Paper written for the SSFE Conference, 19-21 March, Mekrijärvi, Finland.

Veer, C. 1987. Forestry as social system. Department of Forest Management, Agricultural University, Wageningen. In Dutch.

Volk, H. 1995. Wald und Erholung im Wertewandel: soll der Naturschutz die Erholung verdrängen? *Beiträge für Forstwirtschaft und Landschaftsökologie* 29(3): 127-133.

Wilson, K. and Morren, G.E.B. Jr. 1990. Systems approaches for improvement in agriculture and resource management. MacMillan Publishing Company, New York.

COMMUNITY, CULTURE AND CONFLICT

Paul Mitchell-Banks
University of British Columbia
Canada

ABSTRACT

Community, Culture and Conflict are three concepts that need to be addressed when dealing with Conflict Management and Public Participation in Land Management. Each concept is heavily value laden with extensive symbolism and emotionalism attached. The concepts need to re-evaluated within the context of a world within which political and administrative boundaries are often frequently changing. A recent example of this is Finland joining the European Union - this has involved the decision to incorporate the country more closely into a larger political body. Any association results in a loss of autonomy, but the world is becoming so inter-linked that it is extremely difficult to address any large social, economic or environmental issues without incorporating extra-national concerns, either directly or indirectly. This presents a tremendous governance challenge.

Environmental impacts are most often oblivious to boundaries with only the type of event, weather, watersheds and physical geography determining where the impact occurs. Downwind impacts of atomic events (ex. Chernobyl, Three Mile Island), downstream impacts such as from large hydroelectric dams (ex. Aswan Dam, W.A.C. Bennet Dam), chemical applications in agriculture (nitrogen run off) and forestry (pesticides, herbicides) are just some of the environmental management challenges we face.

This paper will address assumptions behind concepts and conflict management processes and suggest approaches to minimize uncertainty, reduce fear, and encourage community building and cooperation.

Key words: Community, culture, governance, boundaries, conflict, awareness, cooperation

Birger Solberg and Saija Miina (eds.)
Conflict Management and Public Participation in Land Management
EFI Proceedings No.14, 1997

1. INTRODUCTION

Community

Community is a term that has been discussed in a large number of forums and there have been numerous definitions and meanings attributed and ascribed to it. It is a term to which there is significant symbolic value and which many hold as dear - "People manifestly believe in the notion of community, either as an ideal or reality, and sometimes as both simultaneously" (Hamilton 1985: 8).

Community is a critical element, a building block or foundation on which the structure of society hangs. Indeed, "the study of community will continue to be necessary as long as local relationships play an important part in peoples lives, for we have a long way to go until we are all part of a McLuhanesque 'global village', or feel that the only determining feature of our social lives is our relationship to the means of production and membership of a social class" (Hamilton 1985: 8).

Cohen argues that community can be examined by focussing attention on the boundary, the element that discriminates between what is within and without the community. The boundary captures the identity of the community and "like the identity of the individual, is called into being by the exigencies [demands] of social interaction" (Cohen 1985:12). Boundaries come into being in order to delineate differences, to create a separation between a community and an entity or other community.

A community involves membership, and Cohen suggests that symbols play an important role in binding a community together. The symbols serve as foci, and "do not so much express meaning as give us the capacity to make meaning" (Cohen 1985:15). The symbols are assigned meanings, with different members of the community often having a spectrum of meanings that they attach to the symbols.

The very awareness or consciousness of the community is maintained through the manipulation of the collective or common symbolism. Cohen states that "the reality and efficacy of the community's boundary - and, and therefore, of the community itself - depends upon its symbolic construction and embellishment" (ibid).

The stages of community development have also to be considered. Community growth goes through a number of stages, some which are conflict free - others which may spawn conflict. By learning to communicate effectively, practicing cooperation, choosing effective leaders, and valuing the desired outcomes of community growth, the community becomes a purposeful and resilient activity (Whitmyer 1993).

Culture

Communities have a culture. Geertz states that "...man is an animal suspended in webs of significance he himself has spun..."(Geertz 1975). These webs represent culture. Culture acts as a community 'glue', a binding agent to hold or join the members in a community.

Geertz assigns three principles to culture. The first principle of culture is that it is created and recreated on a continual basis through social interaction between people - it is not imposed upon them. Even the residents in a prison have some choice in how they chose to interact with their surroundings and prison workers or inmates.

The second principle of culture is that the evolution of culture is a continuous process and culture has neither "deterministic power nor objectively identifiable referents ('law') (Cohen 1985:17). Culture can not force an outcome or be relied upon to ultimately explain all interactions or societal events.

The third principle is that culture is "manifest , rather, in the capacity with which it endows people to perceive meaning in, or to attach meaning to social behaviour. Behaviour does not 'contain' meaning intrinsically; rather, it is found to be meaningful by an act of interpretation: we 'make sense' of what we observe" (Cohen 1985:17) .

Cohen suggests that the ultimate referent of community is that its members make (or believe they make) a similar sense of things. This can be in either a general fashion or with respect to specific things of interest. Furthermore, the community members believe that there may be some uniqueness or differences of their community sense from that of another group. In other words, the realization of community or reality of it in peoples experience resides in their attachment to a collective or common body of symbols. "Peoples experience and understanding of their community thus resides in their orientation to its symbolism" (Cohen 1985:16). This experience or relationship can be defined by: physical attributes (the cold and snowy winters of northern Finland); the distinctive architecture of the buildings (the Roman Catholic Cathedral in Freiburg, Germany); or the belief system/philosophy/religion such as for the Venables Valley community in British Columbia who are followers of Hare Krishna.

Evernden talks about the social construction of reality, suggesting that it is "the production of a landscape photograph. If we assume that there is a normal photograph that represents what is actually present in the world, then the act accomplished by society is the taking of one small portion of that image and pretending that it is the whole" (Evernden 1985:36). It is this landscape or image, and our reluctance to re-evaluate the status quo, that explains the societal upheaval caused by the launching of the Russian Sputnik in 1957 or the first images of the planet earth floating in space. People around the planet ended up rethinking and adjusting their societal or planetary images/photographs.

One of the common symbols in community is the institution. Institutions can take many forms or shapes. The Royal Canadian Mounted Police is a unique Canadian Institution, the Laplanders are a Finnish or Swedish Institution. Religious organizations or beliefs are powerful institutions - consider the power of simply the images of the Pope or the Dalai Lama.

Institutions can also be much lower profile, such as the local school, chamber of commerce, community holiday or common activity. Etzioni argues that "communities congeal around such institutions. And when these institutions of several communities are "consolidated" in the name of greater efficiency, communities are often undermined" or weakened (Etzioni 1993:136). An example of weakened institutions and community impacts is when small rural communities are not deemed large enough to support schools, so the children are bused away or in many cases have to enter

residential schools at some distance from their home. Another example would be when resource management decisions are not handled by the communities themselves, but are managed by a regional or state level of government.

Conflict

Conflict is most often considered as a negative phenomenon - something to avoid. Conflict can also be considered as a positive phenomenon. Consider academia and Hegel's dialectic, in which 'synthesis' (a new thesis or concept) results from the conflict between 'thesis' (the original idea) and 'antithesis' (another idea or explanation which challenges the original thesis).

Constructive conflict can also serve to increase the awareness of everyone's concerns regarding values, needs, etc. It can lead to a greater awareness of the scope (breadth or extent) and scale (size) of the challenges that need to be addressed. This can be particularly valuable in land use decisions, in which there is tremendous complexity and additional challenges related to such planning challenges as traditional or cultural use, carrying capacity or cumulative impacts.

Conflict can result from a number of situations, including but not limited to: incompatible activities; interdependent players interacting; the clash of values and beliefs/perceptions; projections and fear; problems and symptoms and how often they are mistaken for each other.

Conflict can often not be avoided, and arguably it can serve an important function in the planning or decision exercise. It is not conflict per se that can be a problem, but the nature of the conflict and how it is managed that can lead to even greater challenges.

The planner/decision maker and their 'baggage'

The land use planner or decision maker when facing a planning decision, acts on a number of assumptions - things that they believe to be 'true' or 'correct'. Assumptions are used to formulate a schema or model which serves as a means of representing the situation that they face. It is a representation of reality but at a more manageable and manipulable scale. Economists make assumptions about future economic growth or interest rates. Urban planners often make assumptions about housing density and transport requirements. Foresters make assumptions about site and species compatibility, or operational impacts on biodiversity.

Assumptions are powerful tools with which we attempt to address the complexity of a situation which presents itself. Like any powerful tool, when used correctly they can achieve very satisfactory results. When misused or misunderstood, the results can be far from satisfactory.

Assumptions are not only shaped by the situation and the elements that present themselves. They are also influenced on both a conscious and unconscious level by the training and education that the decision maker has received. Experience can play a

significant role in tempering theories and hunches, and a someone who has a long history of work or decision making in similar situations or circumstances will often hold a more balanced and objective perspective which can assist in producing the optimal decision.

It is important to acknowledge that assumptions incorporate values and beliefs/perceptions. Assumptions regarding rights incorporate values and beliefs or perceptions regarding rights and what they represent. Unconscious or even conscious 'baggage' (values, beliefs or desires) can lead to sub-optimal outcomes, as these will negatively influence the decision maker, swaying them from making a balanced decision in which concerns are efficiently and effectivel addressed.

It is unrealistic to expect anyone to be completely disconnected or unemotional in making a decision. There is no such thing as a completely objective decision maker. Computers supposedly can do this - but computers are set up by programmers who can be notoriously temperamental! The personality of the programmer will be transferred in some fashion to the software that they design. The personality of the computer designer will influence hardware layout and performance, perhaps influencing how software runs and the computer performs.

The important thing is not to pretend to be completely objective and make the 'right' decision. No one is served by this purported ability to disconnect oneself from the situation. It is critical to acknowledge where our own cultural and community 'programming' or experiences can influence decisions. Some of these decisions may spawn conflict. This 'programming' is very much a part of the professional decision maker's make-up. We often talk about 'schools of thought' or philosophies/approaches. Consider the Chicago school of economics (very quantitative, monetary in policy), or the University of British Columbia Forestry Faculty (research oriented, little extension work). All of our thinking and feeling and thus behaviour is based on both education and experience.

Forestry management challenges

Forestry, of all the resource based industries, is perhaps the most complicated to operate within and to manage (Mitchell-Banks 1994a). Forestry is characterized by long rotation times of the crops. The time horizon from planting to harvesting takes 6-8 years in Brazilian Eucalyptus plantations, 80-100 years for British Columbia's coastal Douglas Fir and Hemlock forests, and over 150 years for specialized hardwoods grown in some European Forests. The very renewable nature of forestry makes it more difficult to manage than mineral resources, which are simply 'gone' when the reserves are exhausted.

Coupled with this long time horizon is the wide variety of challenges, made more complicated by the lengthy time frames. A brief list of some of these challenges is provided below.

Long Time Frames - tree crops, or rotation times from harvest to harvest can vary from as little as six years to well over 150 years. Harvesting trees from the same area over a prolonged period of time, is akin to farming - but the crops can take generations

of „farmers“ to manage. Often the forester harvesting the trees is not aware of the entire history of the stand, the intimate understanding of the crop that a wheat or fruit farmer would have.

Future Uncertainty - there is no such thing as certainty when dealing with the future, other than one day we will all die. We simply do not control the future, nor can we anticipate and address all of its challenges. Increased societal, global, and technological change merely compounds the future uncertainty.

Economics - Economic concerns can occur at a company or institutional level, sectoral level, state level or international level. Sectoral economic concerns can result from substitution, such as the growing interest in aluminum framing for houses. State level concerns can result from changes in taxation or trade policy - prohibitive taxation levels or boycotts of important customer countries can severely cripple the best business plan. The imposition of the Forest Practices Code in British Columbia (largely as a result on international market pressure) has resulted in a significant increase in forestry operational costs and administrative costs for both the forest licencees and the Ministry of Forests.

Social Needs/Desires - Thirty years ago, no one would have anticipated the current scale of the environmental movement and the interest of the public in forestry. In Canada, the logger who was once revered (for their hard work and romantic lifestyles, etc.) is now reviled by some significant sectors of the public. Europe has seen the rise of the Green Party and the „Green Wave“, and one of the greatest challenges facing the European Common Market is the addressing of social needs and desires related to the environment. Ecoforestry has become a marketing tool for certain forestry products.

Problems and Symptoms - often mixed up, misinterpreting these two planning considerations can have both short and long term implications. Symptoms are a result of the problem. Addressing the root cause of the symptom (the problem) will often lead to the disappearance of the symptom. Addressing only the symptoms and not the underlying cause or problems will not solve the situation - it will only mask it. An example of this is deforestation and potential siltation in watersheds. Providing an artificial or mechanical filtering system may create palatable water - but it does not address the cause of the drinking water problem. It is only by directly addressing the cause of the siltation (stopping the removal of trees leading to the sloughing and erosion of soil - perhaps even undertaking reforestation) that the siltation problem (problem) will stop and the undrinkable water (symptom) successfully solved.

Governance - This refers to government, control or authority. Political systems can change from regular elections or revolution or insurrection. Change can result from external political forces or agreements, such as the internal governance changes will occur in Finland and Sweden (the latest countries to enter the European Common Market).

Technological - Advances in both mechanical and biological technology have resulted in significant changes in the forest sector. Mechanical harvesting, and mill processing advances have led to lower unit costs and reduced forest sector employment. In British Columbia, technological change has increased the forest area that is economically harvestable. Future technological changes can not be counted on to continue this expansion of the economic forest area indefinitely. Satellite, aerial and

remote sensing information have exponentially increased the volumes of data that can be considered in making a decision.

Climate - simply put, both the short term and long term weather patterns. Short term weather concerns include droughts, which can lead to reduced growth or tree health and the death of seedlings. Long term considerations centre around concerns such as global warming - if it is occurring, and if so, what will the impacts be. Studies being carried out in the University of British Columbia suggest potentially huge problems with insect infestation in Canadian boreal forests if the global mean temperature rises approximately 2.5 degrees centigrade.

Knowledge - the amount of knowledge available and used has a direct influence on how successful the forest planning will be. Knowledge involves both data as well as an understanding of relationships. The level of knowledge regarding forest management is great, due to the complexity of the forest ecosystems, as well as the large and varied number of functions which the forests serve.

Resources for Management - this is simply how much money, equipment, time and staff you have to conduct the forestry planning and management. As with many things, the more the better, but this is not a guarantee of success - skill level, education, attitude and experience are crucial elements of management success.

Resources Considered - The more aspects of the forest ecosystem and uses considered, the more complicated the resource management. Some resources are reasonably easy to inventory and quantify, such as tree species, volumes and ages. Other resources, such as landscape value, or biodiversity are difficult to both define and quantify. What results is a basket of quantitative and qualitative resource considerations and challenges.

Accuracy in Measurement - Information or data that is unavailable, inaccurate or not complete in time, can lead to poor or less-than-optimal forest management decisions, or even prevent them from being made altogether.

Accuracy in Evaluation - The successful evaluation of data is highly dependent on the quality of the initial data. Poor quality data is difficult, and at times impossible to overcome, hence the rule of thumb 'Garbage in, Garbage out'. New planning tools, such as Geographical Information Systems (GIS) have proven to be very popular, but a growing concern regarding this powerful management tool is the propagation of errors. Tools are only as good as the person using them, this is often overlooked in deciding how to approach a land use challenge.

Carrying Capacity - To date, this cannot be measured. The concept suggests that the earth has a limit to how much activity or human impact that it can withstand before showing signs of degradation. A relatively new concept - and one which indicates that there are limits to what can be done.

Cumulative Impacts - Related to carrying capacity, the concept of cumulative impacts suggests that over time, small or short term impacts can add up, resulting in unexpected environmental damage. This gradual build up of impacts is not always obvious or measurable. Some people, for example, are arguing that the wounded and dying trees in the American Adirondacs, suspected of suffering from acid rain, have taken tens of years to reach this stage, where their poor health has become noticeable. Others are arguing, that damage to Canada's Sugar Maple plantations, is not attributed

to acid rain, as once thought, but a combination of factors, including: drought, frost, disease, disturbance, ozone - and possibly acid rain.

Complexity - Simple environments or habitats are easier to observe and study than more complicated ones. Unfortunately, studies are beginning to suggest that simple habitats are also more susceptible to environmental damage than more complicated ones.

Equity - or equal treatment. This applies to people alive today, in that decisions have to be made about what is more important, and any decision has an impact on people. Equity can also apply to our descendants, as any decisions we make today will have an impact on those that follow us. Where different cultures may exist in the same area, then cultural equity has also to be considered. Different cultures have different relationships with the land. This point is often argued by Native Indians in Canada.

Equity in forestry can involve addressing timber concerns, such as the extent and timing of harvesting, species planted, management techniques, etc. More importantly, equity in forestry also has to address the non-timber concerns, such as trapping, hunting, fishing, recreation, tourism, medicinal and food gathering, spiritual areas, existence and option values, ecological processes, etc.

Power and Authority - Often mistaken for being the same thing, power and authority are in fact quite different. Authority comes from being in a certain position, whether you are put there (for example as a forest executive) or elected (mayor of a community). Power comes from having the ability to control or influence people. Power can arise from position, but it can also stem from age and wisdom (some cultures honour their elderly), from possessing information or knowledge, from being an effective organizer, or from being an effective public speaker whose speech can influence how people think about an issue. Power can also result from position, such as the secretary to a president of a company...if the secretary does not want you to see or speak to the president, it is often very difficult to work around them.

Risk

Risk can be thought of as another word for uncertainty. No one can predict the future 100% accurately, 100% of the time. Forest management and planning try and reduce the uncertainty of risk - a particularly challenging task given the long planning time horizons involved. They can not completely eliminate it, but can make it more manageable.

People often think of risk as making the wrong decision, but there are other types of decision risk, including:

1. the risk of making the 'right' (correct) decision with 'wrong' (incorrect) information;
2. the risk of making the 'wrong' (incorrect) decision with 'right' (correct) information;
3. the risk of not making a decision;
4. the risk of deciding to do something when nothing needed to be done.

Convential planning, which attempts to make the risk 'manageable' often follows the following seven stages to address a situation (Mitchell-Banks 1992).

1. Determine problem exists. Are you dealing with something that has to be addressed? What are the problems and what are the symptoms? Care has to be taken that you truly appreciate the situation problem (if one actually exists). There has to be a sensitivity to the situation faced, with respect for the participants/actors. Cultural barriers can come into play - even subtle ones such as the vocabulary used in researching the situation.
2. Determine the evaluation criteria. How will you determine (evaluate) whether the problem has been effectively addressed? The tool box can incorporate both quantitative and qualitative methods. Do you as the planner have any preferences - are they warranted in this situation? Is there the possibility that you are using a sub-optimal tool simply because it is one that you are more comfortable with?
3. Generative alternatives. What are the potential means to address the problem? Doing nothing is one alternative that is often not considered. The generation of alternatives can often be influenced by the stage that has been set for this. Is it an open process? Is everyone or stakeholder equitably considered? What if any organizational design or organizational behaviour factors might be at play? Are there some cultural or community norms that you should be aware of ? A Canadian example of this is that when working with First Nations (Native Indians) for whom there may be a hesitation to suggest or aggressively argue a point - the Native Indian culture can often involve a longer time to come to a decision - often by consensus. This time frame is often not appreciated and longer than the non Native is used to.
4. Evaluate alternatives. Compare and contrast the generated alternatives. What, if any, are the resulting problems and symptoms? Is the anticipated outcome an improvement, no change or potentially a situation?
5. Select the alternative. A decision is made about which alternative to chose. Good planning documents the entire process, but particularly the evaluation and selection of the alternative.
6. Implement the alternative. The planning decision is implemented (put into practice). Is the alternative that is being implemented adequately documented? Has the planning process been traceable, accountable and reproducible?
7. Monitor the alternative. This is often ignored or mismanaged, this is a critical stage to ensure that the anticipated outcome of the alternative selected is indeed the case. Often, unexpected elements or activities occur, and a chance to re-evaluate, reconsider or select a different and potentially superior alternative is missed.

Each one of these seven planning steps can be influenced by the assumptions or expectations of the planner. These assumptions or expectations are in turn shaped by the culture, community, conflict and the education, training and history or experience that the planner has accrued or experienced. It is important to be sensitive to the influences on the planner and the planning process.

Good planning will attempt to anticipate the consequences and implications of policy that is either successful or a failure. A common problem with policy formation is that it is reactive and not proactive. Often the policy reaction is to an earlier policy attempt or initiative that failed or was not as successful as anticipated. There develops a complicated politics of policy accretion, in which additional policy is successively appended to failed policy as a means to address the inadequacies. The result can be a myriad of conflicting or non-mutually supportive policy or decisions and their related regulations or consequences. A good planning decision involves looking at the problem afresh - and if the problem is a complex one with a long history, attempting to understand the community and cultural dynamics that led to the earlier policy or planning failure. Current situations can often be more accurately understood by deconstructing the symptoms to understand the underlying problems.

Planning or decision making has to be sensitive to the 'culture of bureaucracy' in which there may be delays or modifications (by people who were not directly involved in the decision) to a decision that was made. The 'politics of expertise' can arise, in which certain people or agencies are deemed to have the expertise (whether this is justified or not). Related to this is the challenge of control and attempting to incorporate public participation in the decision process. The planner or politician often find themselves in this fundamental paradox, in which technical expertise may at times have to be tempered or balanced with public participation (in which the public may at times have strong opinions that can be founded on political agendas, faulty logic, or misinformation).

Planners or decisions makers can often fall into the trap of making fewer but larger scale decisions in order to simplify their job or tasks. Schumacher addresses this in his essay on 'A Question of Size', in which he wrote: "We always need both freedom and order. We need the freedom of lots of small, autonomous units, and, at the same time, the orderliness of large-scale, possibly global, unity and coordination. When it comes to action, we obviously need small units, because action is a highly personal affair, and one cannot be in touch with more than a limited number of persons at any one time" (Schumacher 1973: 69).

Forestry planning has its greatest chances of success if it incorporates the following five features. It must be noted though, that systematic planning does not eliminate error, it simply reduces the probability of it occurring - and can aid in management if anticipated possible outcomes do indeed occur. These five features are discussed below. One has to be mindful of the iterative or parallel nature of planning. It cannot just be considered serially, as good planners will reconsider a previous 'given' or 'assumption' if they come across contradictory evidence.

1. Consultation with affected parties. People may be impacted either positively or negatively by a forestry proposal. Positive impacts may include improved access to an area, increased regional employment, etc.. Negative impacts may include scenic or recreational value being reduced, or forest dependent industries such as trapping of guiding being affected.
2. Consideration of reasonable alternatives. The first or perhaps the usual approach, to a forestry management challenge is not necessarily the best. By being open to innovative approaches, or willing to change assumptions, timing, or areas of forestry activities, tremendous flexibility can result.

3. Consider all aspects of the forestry environment. Timber and non-timber concerns, human and non-human impacts, above ground and below ground considerations.
4. Systematically evaluate net environmental effects. Weighing the advantages and disadvantages of various alternatives, with the net environmental effects remaining after mitigation or enhancement has been considered.
5. Provide clear, complete documentation. Records of what was successful, as well as what was not, are very valuable planning information for future decision making. They can also be invaluable if legal action is brought against you as a result of a forestry management decision.

Any planning exercies, especially one involving forests in environmentally sensitive or high use (such as peri-urban) areas can lead to conflict. Addressing each of the previous five features in planning will reduce the level of uncertainty associated with a forest plan, and hence some of the perceived risk and projections.

Particular emphasis on consultation with affected parties and consideration of reasonable alternatives will permit people who have concerns to share them, as well as provide input on various alternatives - some of which may not have been previously considered. Obviously when dealing with people, the importance of community and culture have to be considered to address the potential of conflict.

Dispute resolution

A frequent and universal mistake is bargaining or negotiating over positions. This involves taking a stand or position in a dispute, and then going to great lengths to defend it. The politics of being correct or the consequences of being wrong can drive this stand taking or positional defense. If for example, there is a dispute between logging and trapping, and one person states that he/she is only for logging, and the other states that they are only for trapping, there is a self-imposed impasse, that cannot be easily resolved.

At times, people can get so involved in their positions, that they can not work their way out of the dispute, and end up 'painting themselves into a corner' or 'tieing their own hands'. This can lead to a dispute being either prolonged or at times being created needlessly.

There are four steps (Fisher et al. 1991) that can be taken to attempt to avoid or minimize disputes: separate the people from the problem; focus on interests, not positions; invent options for mutual gain; and insist on objective criteria. These steps are discussed below.

1. Separate the people from the problem. This involves focusing on the problem, and not reacting to the personalities of those people voicing or representing the issues. A dispute can become very nasty and complicated if people start attacking each other, rather than trying to understand and solve the problem. Culture, community and conflict can obviously influence this step. 'Champions' often arise to lead or act as spokes people for a concern or potential conflict. The spokes person is not the problem, they are someone who is concerned about the problem - though often their focus can be on the symptoms.

2. Focus on interests, not positions. If the interests (concerns) of the people involved in the dispute are identified and addressed, then it is often possible to discover that people in the dispute have similar interests. Sometimes, it is only the weight or level of importance given to an issue that separates people, this is easier to see when positions are ignored, and interests focused on. Culture and community can make this a challenging exercise, as to understand the interests, the planner often has to appreciate the culture and community within which these interests arise.
3. Invent options for mutual gain. By inventing options or strategies where there is mutual gain (i.e. both sides or parties benefit), then a win-win situation is created, in which both sides can come out ahead. If options for mutual gain are not considered, a win-lose situation can result, in which the loser will feel resentment and can possibly suffer a blow to their reputation and 'lose face'. This does not lead to cooperation in the future, when another dispute may arise. Culture and community play important parts here as well.
   Conflict or the perception of conflict may occur, even with the successful use of an option or strategy to achieve mutual gain. This can occur when cultural and community concerns require a community member to be the 'winner' in a conflict. Sometimes, it is better to appear to 'give in' rather than to be perceived as having come to a mutually acceptable understanding. The attitude and acculturation of the planner or decision maker may lead to them hesitating to accept this role as the perceived 'loser' in the process.
4. Insist on using objective data. By insisting on using objective criteria, the people involved in the dispute have a common set of data and standards to work with. Objective data, is data that can be measured or defined/explained accurately. Knowing that a particular valley is the home to 10 Grizzly bears is much more valuable and useful than just saying that the valley has „lots" of Grizzlies. Objective criteria can be very important when trying to evaluate consequences to decisions, and evaluating trade-offs.
   This can be a particularly challenging consideration in land use planning. Throughout North America, Native Indians or indigenous people have lived for thousands of years and they have passed on their natural resource knowledge from generation to generation by word or mouth. They have an oral tradition of history, not a written one. Traditional Knowledge is often very rich in qualitative information (what animals or plants are found in an area), but often not very rich in quantitative information (how many animals or plants, how often, etc.). There is extensive study and discussion underway on how to marry or combine these information or data sources, as they can often complement each other and lead to a more informed decision than when only one source is utilized.

Cooperation

Cooperation is the ideal form of competition. It can be used as a means to raise all the issues that have to be addressed and considered.

In fact, the etymology, or derivation of the word competition, supports this. Competition is derived from the late Latin competere, meaning to strive together, to meet, come together, agree, from com-together and petere to seek (Collins English Dictionary 1991).

Axelrod suggests four elements of social structure (community) can help bring about cooperation and increase its chance for success (Mitchell-Banks 1994). These elements are: labels; reputation; regulation; and territoriality(Axelrod 1990).

1. Labels. Labels are a means of identification, so that you can recognize where someone comes from, and whether you have dealt with them before. People with similar labels form a type of community. Race can act as a label, as can traditional costume, and customs such as certain activities.
2. Reputation. Reputation refers to the history of behaviour that someone has. If known, this can help others to anticipate how they might behave in the future. Having a good sense of how someone will behave - helps increase the chances of avoiding conflict and bringing about cooperation. Reputation assists in the prediction of outcome.
3. Regulation. Regulation refers to rules or discipline, so that everyone knows what is, and is not allowed. Governance, in which the regulation results from a form of agreed to government is another frequently used term. Successful property rights regimes have regulation.
4. Territoriality. Territoriality refers to the sense of place or territory that a group of people might have. Territoriality creates a limit about the area to be concerned with, it forces the players to focus on a spatial area, or particular market or policy sector. The territoriality may refer to a watershed or valley, the Traditional Territory of a Native Indian group, or the habitat of an important community need or food source - such as the Reindeer of northern Scandinavia or Caribou of North America.

Something that has to be considered in reviewing these four elements is whether the selection of membership in the community is imposed or self determined. Communities occur in a wide spectrum of sizes, homogeneity or heterogeneity and duration. Culture can play a significant role in the determination and stability of a community. As was argued previously, culture or 'community glue' can not be imposed and is constantly evolving.

Coming together or cooperation can be assisted through those involved with the forest resource planning being aware of the aforementioned social structures. Similarly, progress is accelerated through awareness and understanding of the following elements: knowledge; power; authority; trust; teamwork; patience; respect; appreciation/understanding; goodwill and hope.

1. Knowledge can lead to increased cooperation when it is held in common, or freely shared, with those that do not know as much about a place, idea, or project. In some cultures, knowledge is a closely held and valued commodity - this can lead to challenges in the sharing of the knowledge of a community or individual.
2. Power refers to the ability to make or influence decisions, and when brought behind a common effort there will be an improvement in the chances of success. Power results from creating a "level playing field" or sense of equality for all involved. Power can often be held in a community by people who have no official governance or authority standing, such as with the elders (elderly) in North American Indian groups.
3. Authority is best dealt with by being aware of who can and cannot make decisions, in order to avoid mistakes or misunderstandings. If people with authority "buy into" the process, its chances of success are much greater. It is important to discern whether the person or people in authority also have the power to successfully implement their decision. Do you need to consider the 'power behind the throne'? Do you need to solicit support from others?
4. Trust is necessary for people to work successfully together. Starting off with a little trust and taking small steps, can lead to it continuing to grow into a deeper commitment. Trust can have all kinds of cultural and community influences. Some cultures are very trusting, others require a long relationship for the trust to evolve.
5. Teamwork is the result of trust, in which people work together as a coordinated unit or whole, counting on each other to fill their various roles in the common enterprise. Teamwork involves the acceptance of a relationship or culture that may be associated only with the challenge at hand.
6. Patience is a necessary element in any forestry project. Planning and learning about a project, and the various members involved with the project, takes time, and mistakes or misunderstandings are likely to occur. What is most important, is that the mistakes or misunderstandings are handled in a constructive fashion, in which the members are brought together rather than being driven apart.
7. Respect for all participants, and their various levels of knowledge and experience leads to increased cooperation. Respect should also be given to the forest planning process itself for it to work, in other words, a plan is pursued in its entirety, and for the agreed to length of time.
8. Appreciation/Understanding for the importance of ideas and feelings, and to understand how they all fit into the planning process. Concepts such as good and bad should be avoided, and the focus should be centred on what is the most desirable outcome.
9. Goodwill and Hope are two elements that can go a long way to supplying people the energy to ride through the difficult stages of the forest planning and management processes. Goodwill and hope keep people's vision focused on achieving the goals successfully, even if some concessions have to be made to get there - the end can justify the means (with apologies to Machiavelli).

Community forestry as an integrated planning tool.

Community Forestry can act as a unique means of accomplishing Integrated Planning, in which social, environmental and economic concerns are effectively addressed (Mitchell-Banks 1994b). Integrated Planning requires the involvement of the community residents in order to integrate or combine their knowledge, experience, ideas, concerns, needs and wishes into the land planning. It is this involvement or cooperation with the community residents that distinguishes Integrated planning from the more conventional planning processes (Matakala 1994). A summary of aspects of Conventional versus Integrated Planning are provided below.

Conventional - Directive	**Integrated - Cooperative**
- centralized decision-making	- decentralized decision-making
- planning "for" the people	- planning "with" the people
- formalized process	- flexible, adaptive process
- rigidly defined rules	- jointly defined rules
- formal, impersonal relations	- informal relations
- centrality of technical experts	- centrality of citizens
- positivist mode of inquiry	- phenomenological inquiry mode
- adversarial	- consensus
- win-lose, minimize costs	- win-win, maximize joint gains
- planner as manager	- planner as facilitator

To be successful, Integrated Planning has to involve as many viewpoints and concerns as possible, and address the needs and goals of the local residents involved. These planning aspects are similar to those in Community Forestry, suggesting that Integrated Planning can be accomplished through utilizing Community Forestry as a planning vehicle. Community forestry has a history of resource management involving:

1. Smaller-scale, more environmentally sensitive forest management practices;
2. A stronger connection likely between forest management revenues and costs;
3. High potential for resolving local resource-use conflicts;
4. A higher degree of meaningful public involvement in decision-making;
5. Increased awareness and interest of the public in forest management;
6. Greater opportunity to maintain stability of local economic activity.

Community Forest Management can act as an interface, in which environmental and ecological concerns; political as well as sociological considerations; equity issues; and economic and local business implications can be addressed. The forest can be managed to produce a variety of outputs, including: timber; non-timber products; specialized products; recreation; food; medicine; spirituality; land bank possibilities; aesthetic/landscape considerations; existence, option and bequest values; fish and wildlife; plants; biodiversity; education; experimentation; art and tourism.

Community forestry can act as a planning tool and can be compared to a tree. The roots represent the community forestry planning and management process. The roots (community forest process) take up or address the inputs (planning concerns and considerations) and plan or convert them to the outputs or desired planning outcomes (the trunk and the branches).

The community who control the forest area, the culture of the community and the conflict that exists within and without the community will influence the effectiveness of community forestry as a planning tool. Any tool is only as effective as the user - and this holds as true for community forestry as it does for any hammer, computer or machine device.

REFERENCES

Axelrod, R. 1990. The Evolution of Cooperation. New York: Penguin Books.

Cohen, A.P. 1985. The Symbolic Construction of Community. Key Ideas. London: Routledge.

Collins English Dictionary, 3rd Edition. 1991. Glasgow: Harper Collins Publishers.

Etzioni, A. 1993. The Spirit of Community. The Reinvention of American Society. New York: Simon & Schuster.

Evernden, N. 1985. The Natural Alien. Toronto: University of Toronto Press

Fisher, R., Ury, W. and Patton, B. 1991. Getting to Yes. Negotiating an Agreement Without Giving In. New York: Penguin Books.

Geertz, C. 1975. Thick description: toward an interpretive theory of culture. In The Interpretation of Cultures. London: Hutchinson.

Hamilton, P. 1985. In: Cohen, A.P. (ed.) The Symbolic Construction of Community. Key Ideas. London: Routledge.

Matakala, P. 1994. Holistic Resource Management Planning through Local Decision Making. Graduate Forestry Student Seminar, October 6, 1994. University of British Columbia.

Mitchell-Banks, P.J. 1992. Sechelt Indian Band Planning Project. Sechelt (British Columbia) - unpublished report.

Mitchell-Banks, P.J. 1994a. Conflict and Cooperation in Small Scale and Community Forestry, in Proceedings of IUFRO Symposium, Small Scale Forestry, Krakow, Poland, August 28 - September 3, 1994.

Mitchell-Banks, P.J. 1994b. Community Forestry as an Integrated Planning Tool, paper presented at Forestry and the Environment: Economic Perspectives II. Banff, Alberta, October 12-15, 1994.

Schumacher, E.F. 1973. Small is Beautiful. Economics as if People Mattered. New York: Harper and Row.

Whitmyer, C. 1993. In the Company of Others. Making Community in the Modern World. New York: Putnam Books.

EXPERIENCES AND OVERVIEWS

A) STUDIES AT NATIONAL/REGIONAL LEVEL

PUBLIC PARTICIPATION - A SOCIOLOGIST'S ACTIVITIES & OBSERVATIONS, MINNESOTA & WISCONSIN FORESTS, U.S.D.A. - FOREST SERVICE (U.S.F.S.)

William A. Fleischman
University of Minnesota
USA

ABSTRACT

National Environmental Policy Act (NEPA 1969) and the National Forest Management Act (NFMA 1976) included emphasis on social considerations and were associated with increased involvement of social scientists in natural resource management. The activities described in the paper are focused primarily on the social dynamics of the planning process and the management of conflicts in the Eastern Region of the Forest Service, U.S.D.A. The discussion focuses on five different types of activities. The first concerns the way the organizational structure of the Forest Service relates to the nature of the conflict process. The situation is summarized with presentation of the "Symmetry Hypothesis". The second is the process of "Conflict Analysis". The analysis format provided a basis for producing a "Conflict Polarization" summary. The third provides a brief overview of a "Facilitated Negotiation" process that was used to resolve conflicts associated with the completion of a forest plan. The fourth involves the use of "Round Tables" comprised of "experts" to manage conflicts over biodiversity issues in two National Forests. Finally, the use of a "Task Force" at the beginning of the development of the management plan for the Boundary Waters Canoe Area Wilderness (BWCAW) is briefly presented. The situations are used to provide the frame for arriving at a set of "Basic Principles" that apply to the use of Public Participation in Forest Resource Management.

Key words: Public participation, conflict potential, facilitated negotiation, symmetry hypothesis, National Forests

Birger Solberg and Saija Miina (eds.)
Conflict Management and Public Participation in Land Management
EFI Proceedings No.14, 1997

1. INTRODUCTION

I have had the privilege of working with the staff of the Superior National Forest and others in the Eastern Region (Region 9) of the Forest Service, United States Department of Agriculture (F.S., U.S.D.A.) since 1979. I would like to share some ideas I have had a chance to develop based on my activities during that time and some of the observations I have made. This paper presents a brief summary of some of those experiences.

I will begin by briefly setting the context for activities with the Superior National Forest (SNF), describe five different public participation settings - one of which concerns two forests in Wisconsin, summarize some observations resulting from my activities, and conclude with a brief description of some public participation principles based on those activities and observations.

2. THE FORESTS

The National Forest System is divided into Regions. The Eastern Region (Region 9) contains those national forest in an area the comprises approximately the north eastern one forth of the United States. The forest that I worked with is the Superior National Forest (SNF). The forest area is located in the northeastern portion of Minnesota and contains approximately 3,000,000 acres (approximately one third of this area comprises the Boundary Waters Canoe Area Wilderness). The Chippewa National forest is also located in Minnesota. It is located in the north central portion of the state. Two forests, the Chequamegon and the Nicolet, are located in Wisconsin. They are located in the north central and northeastern areas of Wisconsin.

3. THE LAWS

Public participation in Forest planning activities increased in the late 1970's and early 1980's. This increase was due in large part to the creation of two acts of the U.S. Congress. In 1969 the National Environmental Policy Act (NEPA - 1969) was passed and in 1976 the National Forest Management Act (NFMA - 1976) was passed. In addition to having an effect on the involvement of the public in natural resource planning activities, the role of social scientists in forest resource management related activities also changed. The two legislative acts each included emphasis on social considerations. In the case of NEPA the emphasis most related to social scientists concerned the inclusion of social considerations in the Environmental Impact Statement (EIS) that was part of NEPA. In the case of NFMA the emphasis included broadening the academic discipline base of the planning team to include social science, consideration to the social dynamics of the planning process, and reducing the social conflicts associated with the development of National Forest Plans.

4. FOREST MANAGEMENT PLAN

The planning process on the Superior National forest was substantially changed following NEPA and especially following the enactment of NFMA. Four changes are most significant for understanding the role of a sociologist in the planning process. First, the "new" planning process was to be the responsibility of an Interdisciplinary Team (ID TEAM). Second, that ID TEAM was to include a social scientist. Third, NFMA included specific language that specified that the planning process was the "minimize the level of conflict" associated with the production of the plan. Finally, the planning process was to place more emphasis on including a wide range of interests in the planning process. The emphasis was on changing the process from simply "informing" stakeholders to "involving" them in the planning process.

As part of the Interdisciplinary Team, one set of my activities focused on the Public Involvement process. In this process I assisted in changing the format of "public input" from public hearings to work sessions, began the use of microcomputers for organizing information & doing content analysisof "public input", designed system for analyzing "Conflict Potential", and participated in a Facilitated Negotiation process used for managing conflicts over the proposed final version of the Forest Management Plan.

In addition, as the "social scientists" on the ID TEAM, I worked on the Social Impact Assessment portion of the EIS, profiled forest users, described communities within the forest boundaries, and identified the significance of transportation routes as part of the explanation of differences in the social effects of Forest Service activities across the forest.

As a member of the ID TEAM, I had the opportunity to work with Superior National Forest Staff on the planning process, helped design and attend the various "public participation" events, and worked on the analysis of the "input" from all of the participants in the planning process. These opportunities resulted in two conceptualizations of the public participation process. The first is a scheme for analyzing the potential for conflict associated with the issues, concerns and opinions received as "input" from the stakeholders. The second was the development of the "Symmetry Hypothesis". The hypothesis reflects the relationship between the "structures" of the participants in conflict situations and the nature of the conflict process. The hypothesis resulted from reviewing past situations which were conflictful, analyzing the extent of decision authority across different levels of forest administration, and observing the types of interactions between stakeholders and FS employees in conflictful situations.

5. ACTIVITIES & OBSERVATIONS

While the focus of the discussion which follows might include a number of activities and observations there are five that seem most relevant for the purposes of this conference. In the preceding discussion two have been briefly identified: the

"symmetry hypothesis" and the "conflict potential analysis". These schemes will be the major focus of the paper. Three others, "facilitated negotiation", round tables", and BWCAW task force" will be briefly discussed in order to provide a sense of the range of public participation and conflict management activities in the Superior National Forest and two "neighboring" forests.

5.1 Symmetry hypothesis

The Forest Service is a hierarchically structured organization. The approval of management plans and decisions regarding the use of conflict management alternatives tended to occur in a centralized and formal manner. The stakeholders very often have individual interests, are not organized early in the planning process, and therefore, begin interactions with the Forest Service as individuals. Further, organizations operating within a centralized and formal structure "prefer" to interact with a small number of units, and "prefer" to interact with structures similar to themselves. As a result, organizations will encourage a single individual to represent those with similar interests in situations where there are a number of individuals who seem to be expressing "similar" ideas but are "unorganized". Further, stakeholders prefer to minimize the amount of time spent "participating". They may be overwhelmed by a "request" to have "someone from the group" represent them and therefore may not initially oppose the representation request and then later in the process become upset if the product of "representative" discussions does not "meet their interests and expectations". As the use of "representatives" develops and conflict emerges, the stakeholders respond by "organizing themselves" by developing a structure that begins to "mirror" the structure of the managing agency. It seems that when two social structures are in conflict and as the conflict continues and/or escalates, the one with the more "simple" structure will change to a more complex structure until the two structures are SYMMETRICAL or nearly so. In managing the conflict which emerged during the planning process, the Superior National Forest decentralized some of the decision making as they interacted with stakeholders in the planning process. The result was (a) the level of conflict was lessened from previous levels or (b) the conflict tended not to escalate, and in some cases deescalated. It seems that decentralizing decisions may give stakeholders a sense ownership of a process and as a result reduce the level of conflict associated with the planning process. By changing the organization structure, if even only temporarily, the organization may reduce the likelihood of the conflict escalating due to the principle of structures in interaction move to symmetry.

5.2 Conflict analysis

The National Forest Management Act required that the Forest Service reduce the conflict associated with the plan. The Superior National Forest (SNF) was one of the "Lead Forests" in the Forest Service in this endeavor. The SNF developed an Interdisciplinary Team (ID TEAM) structure to carry out the planning process. The ID TEAM used a number of different techniques to identify issues, concerns, & demands of a wide range of stakeholders. The range of stakeholders included: (a) the general public, (b) non-governmental organizations (NGO), (c) units of government and other governmental agencies (OGA), and (d) Forest Service staff. The objective of the process was to "daylight" all of the issues and concerns early in the planning process. In previous planning efforts, the process focused on developing a "set of alternatives", informing the stakeholders about those alternatives, and some cases seeking the preferences of the stakeholders regarding the alternatives. The process used by the Superior National Forest following the enactment of the National Forest Management Act began by working with stakeholders with process of problem identification and then moved to identification and discussion of a "Range of Solutions" before developing the alternatives.

This process required that all issue and concern statements received from the stakeholders be recorded "verbatim" and be maintain in "retrievable" form. All ideas were accepted, there was no "screening" of ideas to reduce the number of statements at this point. The planning staff used a newsletter (The Synergist) to outline the planning process, set the stage for Public Involvement, and update participants on progress. In addition, News Releases, Pre-Meetings, and workshops were used to generate the issues/concerns. The first round produced 60 typed pages containing 438 Issue Statements. These were "content analyzed" to produce 12 Categories (e.g.) Recreation/Wilderness, Water/Air, Protection, and Timber, etc..

Each participant was then provided the issues and given an opportunity to indicate their sense of importance, possible duplication and linkage among them. In addition, the stakeholders were given an opportunity to indicate their concerns related to the issues. This process produced 247 concern statements. The input from stakeholders to this point was organized and a number of "Solutions Workshops" were held, both on and off the Forest. The purpose of the workshops was to obtain from the stakeholders their ideas about how to "solve" the issues/concerns. Between 20 and 150 persons attended the workshops and worked together in groups (5-7 persons). The workshops were facilitated by trained staff. All "solutions" offered were recorded and the facilitators assured no "voting" or "consensus" formation. The workshops produced over 2000 statements.

The problem at this point concerned the management of the large volume of information produce from the stakeholders. The process that had been used to this point was called CODEINVOLVE. The process summarized each statement and converted the summary to alpha/numeric code values. The analysis proceeded using the code values. The original statements were not used in analysis and the output was a "set of tables which summarize the public input". Three problems associated with the CODEINVOLVE process are that (a) it did not provide direct access to the original

statements, (b) it was difficult if not almost impossible to show stakeholders the connection between their input and the content of the plan, and (c) it focused primarily on counting the number of persons responding in a particular way and did not facilitate an analysis of conflict or conflict potential.

The development of desktop systems with accessible memory made it possible to move from the CODEINVOLVE type process to one which allowed for storage and direct access to all issues and concern statements generated in the public participation process. Using a " desktop computer" it was possible to enter and maintain the original statements (given on ID number & linked to the source) as part of analysis. It was possible to do key word searches as well as code the statements with Alpha and Numeric values (e.g. content = physical environment (PE), direction = favor (+) or oppose (-), and intensity = low (1), medium (2) or high (3). The current forest management practice was used as the "neutral " point in the coding process. The emphasis is on the direction and intensity of the statements provided by stakeholders (See Figure 1).

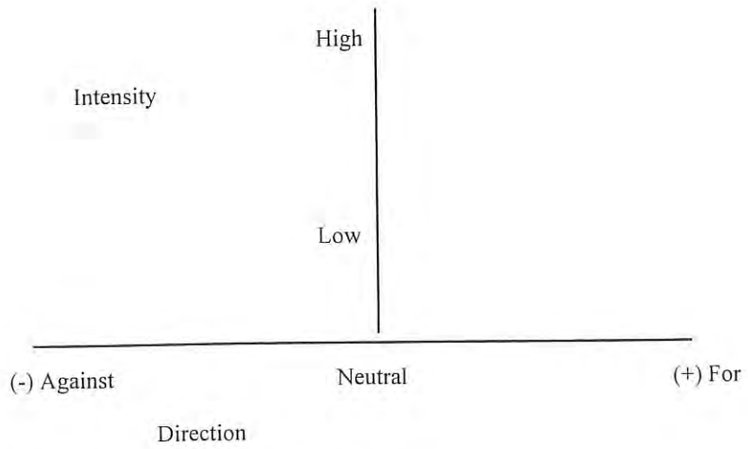

Figure 1. Direction and intensity dimensions.

Using the scheme described above it was then possible to analyze the data with regard to the direction and intensity of the statements and to display to output using a graphic format (see Figure 2). The resulting output displays the nature and extent of conflict polarization and provides a sense of the conflict potential associated with each issue or across a range of issues. Thus, the analysis considers issues and concerns on a multidimensional basis. In the case of the 1986 Forest Management Plan, the conflict potential analysis assisted in reducing the number of issues in contention when the plan was "finalized" and reviewed by stakeholders.

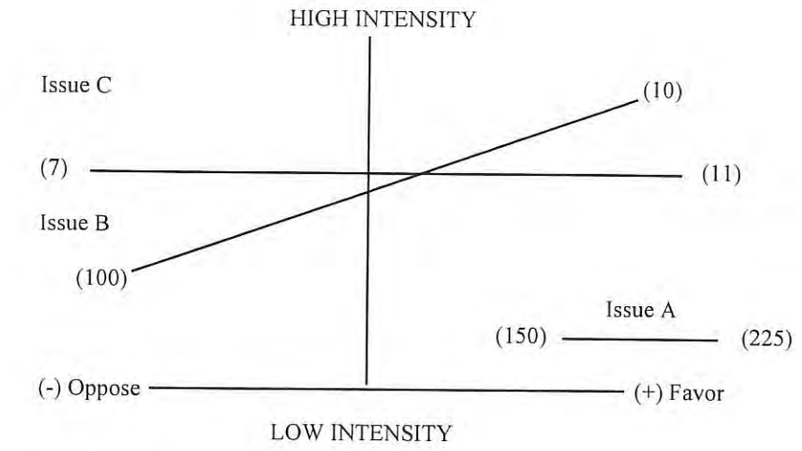

Figure 2. Conflict Potential - polarization.

One can compare the so called Quantitative Approach (which relies on counting the number of times an issue or concern is mentioned and concluding that those issues with the highest number are the most "significant" for consideration in the planning process) with the Conflict Potential Analysis scheme which emphasizes intensity and direction and facilitates a description of polarization within and across issues. The Quantitative Approach might be considered "managing by volume". Given the information in Figure 2 , the Quantitative Approach would focus on the following: Issue A has the highest number responding (therefore it is the "major issue"), issue B has the next highest number responding, and issue C has the fewest number of statements. Therefore the conclusion that would be reached based on the number of times mentioned and a comparison of the proportion of mentions across the issues, issue C would be considered a "minor Issue".

By contrast the Conflict Potential Analysis would produce the following information:

Issue A	Issue B	Issue C
highest number	next highest number	fewest responding
same directions (+)	opposite direction	opposite direction
same intensity	positive more intense	moderate to high intensity
not polarized	slightly polarized	highly polarized

5.3 Facilitated negotiation

Although the planning process attempted to minimize the conflict through the use of a number of public participation techniques and approaches and the use of the conflict potential analysis, 12 Issues became the basis of an "Appeal" of the Plan. The Forest Service had at its disposal a number of ways the appeals could be managed. The most common practice in the past was to "reject the appeal" and move the process to a court hearing. In the case of the 1986 Superior National Forest Management Plan, the decision was made to attempt to get the appealing parties together to work through the issues which were the focus of the appeals. The process that was used is called "facilitated negotiation. The process involved a substantial amount or preparation and pre-negotiation work on the part of SNF staff and others. The preparation took approximately 8 months and the negotiation went on over about a 6 week period.

One of the major problems in the Facilitated Negotiation Process revolved around the ways in which individual as well as organized interest might be included and represented in the process. The appellants were basically those (a) in favor of the plan, (b) those opposed to the plan on the basis of their perception of "too much protection", and those (c) opposed on the basis of "not enough protection". The sides in opposition were represented by legal counsel. It appeared that the process was successful for three primary reasons: (a) both of the legal counsels supported the process of negotiating an outcome, (b) the Forest Service staff - both the facilitator and others maintained a support role and did not enter into the process as "primary negotiating parties", and (c) the participants were willing to consider negotiation as viable alternative in having their interests included in the outcome.

5.4 Round tables

Plans on the two National Forests in Wisconsin also encountered appeals. As was the case with Facilitated Negotiation, the Round Table is a "post planning" public involvement-conflict management strategy. There are some differences between the Superior National Forest process and the situation on the Chequamegon and Nicolet Forests. In the Wisconsin case the major appeal began in the form of a "single", although complex issue - biological diversity. As the process of managing the conflict by forming and initiating the Round Table developed, the issue was separated into two components, first the Biological Diversity Round Table and then later the Socioeconomic Round Table. Further, the Round Tables were comprised of persons with expertise related to the topics. The Round Tables were convened by the Forest Service, but members of each Round Table managed the activities. As in the case of Facilitated Negotiation, the Forest Service served in a "supporting role" through out the sessions. Both Round Tables provided recommendations which were used to make adjustments in the plans.

5.5 BWCAW task force

The Boundary Waters Canoe Area Wilderness (BWCAW) has a long history of conflict associated with its management. Even now, legislation has been introduced in the United States Congress and Senate to modify previous legislation that serves as the framework for managing the area. In addition, the process of mediating the dispute is also under way.

The BWCAW was not included in 1986 Forest Plan. The process of developing the management plan for the BWCAW was to begin after the Forest Management Plan was in place. The planning process for the BWCAW was begun in 1992. The process that was used to develop the plan included efforts to build on the relationships developed during the previous Forest Planning process, including the Facilitated Negotiation Process.

A "task force" or working group of persons with interests in the BWCAW was established (40 to 50 persons) and the BWCAW planning team worked with task force in the process of identifying issues and concerns. It should be noted here that the involvement process was begun "early" in the planning process and the task force met a number of times over approximately one year. The information that was generated was used to develop a number of alternative management scenarios. The scenarios, intended as drafts, were shared with members of the task force and a great deal of opposition and conflict quickly developed. The result of the opposition and conflict was a great deal of "re-analysis" and complete reconsideration of some scenarios and specific aspects of others.

While it may be a over simplification, a large part of the opposition and conflict seems to have been associated with a difference in expectations between those of a number of the task force members and the BWCAW planning team. That is, some of the members of the task force apparently had the conception that they were working to get "their ideas and interests" represented in the final plan. When they were presented with alternative scenarios, some of which contained proposed objectives and management practices which were quite different from their own, they interpreted that difference as "having been ignored" or even "lied to" throughout the process. This example illustrates the importance of establishing clear expectation, having an understanding of the extent to which all parties are aware of and agree to the expectations at the beginning of the public involvement process, and checking on the interpretation of the expectations as the planning process continues.

6. SOME BASIC PRINCIPLES

The five situations provide illustrations of some of the ways in which pubic participation has been implemented. Further, they illustrate that public participation can work to manage the nature and level of conflict associated with developing forest management plans. While there may be a number of ways to summarize some of the "lessons learned" from participating in and observing public participation processes,

there are some "basic principles" that might serve to guide future public participation efforts in natural resource management agencies. Some of the most significant principles follow:

- Nobody likes surprises.
- Order is more important than control.
- There just is not ONE WAY to do things.
- All things are opportunities, not limitations.
- Problem solving is based on trust, not suspicion.
- Information is the energy that "drives" the planning process.
- In organizations, form follows function, but forms are not fixed.
- Interactions start where people are, not where you want them to be.
- Public participation should focus on interests not on organizations or groups.
- Sometimes the story is in the noise - some times in the silence - the problem is to keep both in focus.
- Differences are better managed by force of argument than by argument based on force.

WE ARE ALL IN THIS TOGETHER.

REFERENCES

Crow, T.R. , et al. 1994. Report on the Scientific Roundtable on Biological Diversity Convened by the Chequamegon and Nicolet National Forests. General Technical Report NC-166. North Central Forest Experiment Station, U.S.D.A.

Fleischman, W.A. 1981. Assessing Conflict Potential: A Case Study in Natural Resources planning. Presented at the Annual Meeting of the Rural Sociological Society, Guelph, Ontario.

Fleischman, W.A. 1988. Facilitated Negotiation: A Case Study in Organizational Adaptation. Poster presented at the Society of American Foresters Region V Technical Conference Managing North Central Forests for Nontimber Values. Duluth, Minnesota.

Fleischman, W.A. 1988. Social Unit Differential in Conflicts in Natural Resource Management. Presented at the Annual Meeting of Sociologists of Minnesota. St. Paul, Minnesota.

Jakes, P. and Harms, J. 1995. Report on the Socioeconomic Roundtable Convened by the Chequamegon and Nicolet National Forests. General Technical Report NC-177. North Central Forest Experiment Station, U.S.D.A.

NEPA. The National Environmental Policy Act of 1969. (Public Law 91-190:852-859.42 U.S.C.).

NFMA. The National Forest Management Act of 1976. (90 Stat. 2949, et seq.; 16 U.S.C. 1601-1614).

EXPERIENCE WITH PARTICIPATORY FOREST MANAGEMENT (PFM) IN THE TROPICS

Ian Hunter and Pippa Bird
Natural Resources Institute
UK

ABSTRACT

Participatory Forest Management (PFM), a relatively new approach which is being tried in development projects, evolved from the social and community forestry programmes of the 1970s and 1980s. By 'participatory' we mean a process whereby those with legitimate interests in a resource influence decisions that affect them, as well as receiving a portion of any benefits that resource management may generate. The recent emphasis on PFM results from the evident failure of previous policies which prescribed for people's development but excluded them from the decision-making process, and the widespread institutional recognition that sustainable development must address local people's needs.

Many developing countries have disciplined, hierarchical forest services originating in the colonial era. These institutions, which have hitherto wholly controlled forest management to the exclusion of local communities, are now overwhelmed by the resource pressure that has resulted from often exponential population growth - in some areas, populations have increased by five times in the last 60 years. In many countries forest services' 'reach exceeds its grasp'. The decrease in capacity of forest services has often been exacerbated by Structural Adjustment Programmes imposing participatory management as a condition of funding. Furthermore, draconian police action to enforce forest regulation is fundamentally, and increasingly vocally resented by local resource users.

It is now generally believed that sustainable, particularly multiple use, forest management cannot by achieved without broad practical support at all levels. There is also an increasing recognition of forestry's potential contribution in multiple livelihood strategies, as well as the valuable contribution of local knowledge to resource conservation. PFM can contribute to both development and conservation objectives.

Successful PFM is based on certain key assumptions and generic parameters. It is critical that preliminary social assessment identifies the full network of rights and influences, that the resource to which these interests relate is clearly defined, and that

Birger Solberg and Saija Miina (eds.)
Conflict Management and Public Participation in Land Management
EFI Proceedings No.14, 1997

social institutions and partnerships which are well-defined, flexible, capable and respect the principles of equity are agreed upon by all stakeholders. Striving to meet such parameters is one of the many areas of conflict within PFM, and a recurring problem in PFM initiatives is the ambiguity of its legal basis. The legal framework often consists of fragments of law pertaining to rules establishing collective choice and the use of commons. This is a problem that is confounded by the dualistic nature of national statute law and customary law.

Perhaps most importantly, local communities need an incentive to participate.

Key words: Public participation, sustainable forest management, institutional reform, equity, land tenure reform

1. WHY PARTICIPATORY FOREST MANAGEMENT?

People in many developing countries interact with the forest in their immediate locality in a far more immediate way than those of us from more developed countries. People in the SE of England have little interaction with the broadleaf forest in their vicinity other than recreation (walking, exercising the dog) or perhaps picking bluebells (illegally) in the Spring. Developing country citizens rely on their neighbourhood forest for fuelwood, firewood, medicinal herbs, fruits and berries, grazing for their animals and small poles for construction (Arnold 1991). Citizens of SE England could survive without contact with a forest; many developing country citizens could not because of the forest's crucial role in food security (Clarke 1992, Falconer 1990).

Rapidly increasing populations in developing countries have put increased pressure not only on natural resources but also on per capita incomes (Shepherd 1985). It is a truism that the same resource shared by more must lead to less for all. It is frequently pointed out that modern PFM approaches are strikingly similar to systems that existed a century or more ago (Adhikari 1990) and old Forest Acts usually recognise the needs of local people. Nevertheless, early Aid-funded attempts in the post-colonial era to raise incomes, concentrated on an industrial strategy of maximising the timber yield from forests and plantations (Arnold 1991). Of necessity, these activities often marginalised the needs of the forest-dwelling peoples and impacted adversely on their requirements. For example, forests at maximum canopy density shade out and therefore contain less of an understorey of grass for grazing, medicinal herbs and small shrubs.

There was a growing realisation of these concerns in the 1970's which led to a change of emphasis in Aid-funded projects. New projects were designed to address more expressly the needs of local people. However, some of these new projects suffered from a "top-down" approach to diagnosing people's needs (Blair 1986). Species which were selected and planted by State foresters, for example fast-growing exotic eucalyptus, produced high amounts of biomass but did not produce the range of products required by the local people (Hoskins 1982). The new plantations were often established on what appeared to foresters to be "waste-land" but which yielded valuable grazing and other products for land-poor farmers, to the exclusion of these

(Delaney, Hoskins and Thomson 1985). Thus it was sometimes felt after the event that these projects had actually made life worse for the poorer people they were supposed to help (Siva et al. 1982).

Understandably, these types of initiatives were at best ignored by local people and at worst sabotaged by them (Peluso 1990). Depredations of high forest and its regeneration continued and on occasion whole plantations were burnt or removed. For a time, some State Forestry Organisations attempted to enforce the forestry regulations that prevented illicit felling but right around the developing world "the reach of Government now exceeds its grasp". Budgetary crises leading to intervention from the IMF have usually been associated with "Structural Adjustment" and concomitant reductions in the size of the State, thus further weakening the State's ability to resort to enforcement as a means of rectifying deforestation.

Participatory Forest Management in the tropics was therefore born out of these experiences - the need to find a better, more cost-effective way to control deforestation; the need to do so in a way that enhanced rather than degraded local incomes and the observation that unless local people were made part of the solution they would remain part of the problem.

"Participation" can have many meanings from passive participation where a stakeholder is merely informed through various stages to active participation. This paper will discuss primarily attempts to foster active participation.

It is important to stress however, that many of the PFM initiatives, involving active participation, are new and a conclusive collected body of experience is yet to evolve.

2. THE ASSUMPTIONS BEHIND PARTICIPATORY FOREST MANAGEMENT

For PFM to be a success, certain key assumptions have to be realised.

2.1 People want to be involved

As Rist (1991) has pointed out, the move towards PFM originates partly in the agenda of developed country Aid Agencies who wish to see smaller government agencies and more local self-reliance. While in several parts of the world this support for local activity has been strongly welcomed, in other parts it has been received with bewilderment by people who have little tradition of community management (Hoskins 1982, Thomson 1993).

Developing country social systems are rarely homogenous. Large class, caste and gender based differences exist in many societies such that the benefits and costs of any PFM activity will not be evenly distributed. Jodha (1990) describes a situation in India in which richer members of society no longer use common property resources and are therefore uninterested in its preservation. Bhagavan and Giriappa (1987) show how difficulties with the rural firewood supply are experienced differently by the various classes in rural Karnataka, from the rural middle-class who have no difficulty through

the small peasant farming class who just manage, to the landless wage labourer who is in continual difficulties. Thus it is important to identify clearly which sections of society are likely to be interested in participatory activity. It is, unfortunately, precisely those individuals who are most likely to be involved in the most intimate struggle for survival and are unlikely to have much energy or time for voluntary activity.

Developing country social systems are also in continual change. Many of the rural population do not wish to maintain their parent's manner of interaction with forests but wish instead to be "modern". Brokensha and Riley (1986) note that use of non-timber forest products (NTFP) is changing in response to the wish to be modern and comment that in the case of medicines this change results not from slavish fashion but the fact that western medicines work better. Falconer (1990) notes a decline in the use of forest foods and ascribes it to changing taste (under the influence of foreign imports), lack of produce (through overharvesting) and gradual fading of knowledge. Gadgil and Vartak (1976) document a fascinating case study of how weakened taboos in a more modern India have led to the total degradation of some sacred forest groves that had probably remained inviolate for 1400 years. Yet, the societies may not have moved sufficiently to accept, unquestioningly, a form of land management that originated in more developed societies (Leonard 1984).

Formal land tenure in developing countries frequently does not reflect de facto land use. Various types of communal land ownership exist. Much state-owned land is not effectively controlled by Government agencies but is heavily used by landless people. Attempts to resolve de facto rights can lead to conflict. Fortmann and Bruce (1988) describe a case from Bangladesh where a group of landless people leased land from government for a five year period, in order to establish and manage forest. The previous occupants of the land (effectively squatters) waged a campaign of harassment and followed it up with legal action. The activity would not have survived without international support. Such tenuous legal mandate over an area of land can weaken commitment and resolve.

2.2 People know how to manage forests

Another key assumption for the success of participatory forest management is that somewhere there is a repository of knowledge about how to manage the forest. Many local peoples have interacted with the forest for millennia (e.g. Menzies 1988) primarily through swidden (slash and burn) agriculture at the forest edge and through hunter/gatherer expeditions into the intact forest. There are many reports from around the world that in the course of that activity local people have picked up considerable knowledge about the forest they inhabit. In particular local peoples have become skilled at managing the forest interface system (Campbell et al. 1991, Carter 1992, Warner 1991). Some pastoralist people have learnt how to graze herds in the forest without damaging it (Mshuda 1991). Although relatively few local peoples are recorded as managing the forest regrowth following the end of a slash and burn period, Posey (1985) documents the activities of Kayapo Indians in Brazil in managing the species composition of regrowth and preserving valuable and medicinal plants.

However, the key questions for the 21st century involve maximising the utility of the forests in a sustainable manner. The one area of management of which local people have almost certainly had no experience - for the very good reason that they were excluded by traditional foresters - but which is likely to feature in any income maximisation, is that of logging for timber. Moreover the rise in rural populations means that either the fallow period in slash and burn agriculture must be shortened very much below that for which local people have long experience, or larger areas of forest must be opened up to agriculture. Gathering expeditions have exhausted many NTFP within traditional foraging range of settlements (Falconer 1990). Thus however good local knowledge may be it may not be up to dealing with today's challenges (Warner 1991). Forester's training is equally lacking in managing NTFP production and neither party yet knows how to maximise production and income in a sustainable way. PFM provides an opportunity for both to learn in partnership, but the answers do not yet fully exist.

2.3 People will benefit

We have already observed that different sections of society will benefit differently from PFM, yet for PFM to be sustainable in the long-term it is a commonly held assumption that benefits there must be. This assumption in itself contains an implicit self-contradiction for it is an almost inevitable concomitant that when some form of forest management follows on from open access there will be at least a period of time during which some people will have to defer satisfying their needs in full.

There are now several well-documented examples of people benefiting from tree planting (Chambers and Leach 1989). Small farmers plant Cordia aliodora over coffee crops in Costa Rica and use the trees as a source of income in times of crisis. It is worth noting that this crop needs tree shade and that yields are not adversely affected by the tree's presence. However, there are few reports of the cost:benefit balance in PFM activities in more densely wooded landscapes. Romm (1980) argued theoretically for the need for such studies. There is good reason to suppose that for people under survival pressure the costs may outweigh the benefits (D. Shields pers. comm.)

2.4 The forest will benefit

Some advocates of PFM, holding the view that improvements in civil society and empowerment are of overriding importance, would not give much weight to its impact on the forest. However, we consider that improvement in the forest is of crucial importance if the activity is to yield sustainable improvements. Management by local people can bring about changes that are not optimal for some management objectives. Fernandes et al. (1984), for example, describe a successful and productive multi-tiered agroforestry system on the flanks of Kilimanjaro in Tanzania. Posey (1985) described the modifications to the forest brought about by Kayapo Indians. These systems do

not, of course, preserve or recreate a natural forest. Perhaps it is to be expected that where local people manage a forest they will seek to enhance the amount of useful material at the expense of the less useful. PFM may therefore not be the first choice where forest biodiversity conservation is the first object of management.

May and Michon (1987) describe an agroforestry system with Shorea forest, rain-fed rice and coffee which leads to progressive removal of remaining Shorea forest. Thus PFM may not always slow-down deforestation.

On the other hand, there is some anecdotal, qualitative evidence from some projects and firmer quantitative data from Nepal that PFM has led to increases in the amount of forest (Bird unpub. data). Generally data seem to be lacking.

3. IMPLICATIONS FOR SUCCESSFUL PFM

Although PFM is relatively new in its application to tropical forests there are already some key implications for successful implementation.

3.1 Land tenure reform

A lack of clarity about who it is who is intended to benefit from PFM and how they will be given legal protection for their activities is reported by many workers to be a key cause of conflict and failure (Agarwal 1985, Chambers, Saxena and Shah 1989, Fortmann and Bruce 1988, Grasmick 1988, Stewart 1990). Conflict is probably to be expected in the resolution phase (Hoskins 1982) because many users with varying de facto and de jure rights will have been using the land. If the land is legally but only nominally forest reserve, the State Forest Department may object strongly to any implied change of status. Once it becomes possible to capture resources from the land it is to be expected that those citizens who have been used to capturing an above average share of other resources will become interested in appropriating the PFM resource (e.g. Fortmann and Bruce 1988). Nevertheless, failure at an early stage to deal with these problems will probably weaken the commitment of the people we wish to see active in PFM and lead to failure (Subedi, Das and Messerschmidt 1993). Although common property resources are being privatised in many tropical countries, Bruce and Fortmann (1989) argue for continued communal control on the grounds of equity and the practical outcomes of greater protection and sustainability.

The very act of tree planting on communal land implies sacrifices for poor people with limited land tenure. They will, at least temporarily, lose some of the benefits the area of land provided - e.g. grazing for stock and in some parts of the world the presence of trees on the land may lead to a change in the land's status towards more direct State intervention or control (Delaney et al. 1985, Cernea 1981, Verma 1988).

The mechanism for protecting access to the resource must be appropriate to the local (common) law of the people concerned (Brokensha et al. 1980, Grasmick 1988). The legal and policy framework elsewhere in the country must provide incentives to

management rather than deforestation (Clarke 1992, French 1986). This is a complex area with much detail that will be specific to particular countries, peoples and social systems but the techniques to diagnose the required solution exist or are evolving (Freudenberger 1994) and if applied correctly should lead to stronger more durable solutions.

3.2 Development of democratic structures

Because of the interlocking and overlapping web of de jure and de facto rights to forest land (Cernea 1981, Verma 1988), the interests of environmental private volunteer organisations (EPVO) and the international agendae on environmental issues, it is crucial to build inclusive structures to manage the resource which are stable in the longer term. It is not easy to do it however. Communities may have no existing mechanisms to build upon (e.g. Thomson 1993, Hoskins 1982). Adjacent villages may have overlapping ranges for some forest produce such that organisation at the village level disenfranchises uninvolved neighbours. EPVO's from an adjacent large town may see themselves as important stakeholders but are not so intimately involved in the daily struggle for survival. Above all, the international agendae followed by change agents such as Aid Donors force the conclusion that only certain outcomes from participatory management are acceptable (Rist 1991) e.g. sustainable management, conservation of biodiversity, which when left to themselves villagers may decide to forgo over all or part of their territory. Several authors conclude however, that if this process is done correctly and activity emanates from the people themselves, PFM can be a success (Agarwal 1985, Berenschot 1991). Care must be taken that the solution is stable without outside or international support (cf Fortmann and Bruce 1988).

3.3 Changes in modus operandi of the State Forest Service

Many developing countries have disciplined, hierarchical forest services originating in the colonial era, that are involved in both land "ownership" and management control. However, once land and resources have been effectively transferred to groups of local people, the role of the national Forest Service must change and it is as well that this change is incorporated in any plan and the nature of it signalled to all involved. The Forest Service will in all probability, have been involved in the past in "top-down" planning for the management of the state land which comes under its juristiction. Matters such as the clearing of wasteland; the choice of species to plant; control measures to limit access to the growing crop and the timing of and disposal of harvested trees will all have been decided with minimal contact with local people. Because local people felt no ownership of the process it is highly likely that their behaviour will at best have been unhelpful. Foresters beliefs about local people are highly likely to be hostile, charicatured and inaccurate (e.g. Dove 1992). Yet in their new role, they have the role of facilitators and advisers. Korten and Uphoff (1981)

argue the need for bureaucratic reorgansation to remove the tendency of the state department to revert to centrally planned results-orientated management. Foresters are likely to feel threatened by the apparent diminution of their role and may react negatively to any change. A key factor in PFM success may be the reorientation and reeducation of forestry staff.

4. CONCLUSIONS

Despite very significant problems in implementation, the literature and reports from field projects seem to indicate, that given time, PFM can have positive impacts on forest condition, social organisation and that eventually the policy and legal framework will be aligned to reflect the new reality. It is most noticeable that the most positive reports emanate from Nepal where PFM has been tried for over 25 years and the greatest confusion, interspersed with negative reports, come from those parts of the world where PFM is new.

REFERENCES

Adhikari, J. 1990. Is community forestry a new concept? An analysis of the past and present policies affecting forest management in Nepal. *Society and Natural Resources* 3(3): 257-65.

Agarwhal, B. 1985. Of social forestry and other tree planting schemes. In: Cold Hearths and Barren Slopes: The Woodfuel Crisis in the Third World. Allied Publishers. New Delhi. Pp. 106-139.

Arnold, J.E.M. 1991. Community Forestry: Ten Years in Review. Community Forestry Note No 7. FAO, Rome. 32 p.

Berenschot, L. 1991. Social Forestry in the Peruvian Andes. In: Savenije and Huijsman (eds.). Making Haste Slowly: Strengthening Local Environmental Management in Agricultural Development. Royal Tropical Institute, Amsterdam. Pp. 174-187.

Bhagavan, MR and Giriappa, S. 1987. Class structure of rural energy crisis: case of Karnataka. *Economic and Political Weekly* 22(26): 57-69.

Blair, H.W. 1986. Social Forestry: time to modify goals. *Economic and Political Weekly* 21(30): 1317-1321.

Brokensha, D., Warren, D.M. and Werner, O. 1980. Indigenous Knowledge Systems and Development. University Press of America. 466 p.

Brokensha, D. and Riley, B.W. 1986. Changes in use of plants in Mbere, Kenya. *Journal of Arid Environments* 11: 75-80.

Bruce, J.W. and Fortmann, L.P. 1989. Agroforestry: Tenure and Incentives. Land Tenure Center Paper 135. University of Wisconson 46 p.

Campbell, B.M., Clarke, J.M. and Gumbo, D.J. 1991. Traditional Agroforestry practices in Zimbabwe. *Agroforestry Systems* 14(2): 99-111.

Carter, E.J. 1992. Tree cultivation on private land in the Middle Hills of Nepal: Lessons from some villagers of Dolakha District. *Mountain Research and Development* 12(3): 241-255.

Cernea, M. 1981. Land Tenure Systems and Social Implications of Forestry Development Programs. World Bank Working Paper 452. World Bank, Washington, USA. 35 p.

Chambers, R. and Leach, M. 1989. Trees as savings and security for the rural poor. *World Development* 17(3): 329-342.

Chambers, R., Saxena, N.C. and Shah, T. 1989. Why small farmers don't plant trees. In: To the Hands of the Poor. Intermediate Technology Publications Ltd. London, UK. Pp. 170-196.

Clarke, R. 1992. Forests, Trees and Food. FAO Rome 26 p.

Delaney, J., Hoskins, M. and Thomson, J. 1985. Majjia Valley Evaluation Study. Sociological Report. CARE Unpublished.

Dove, M/R. 1992. Foresters' beliefs about farmers: a priority for social science research in social forestry. *Agroforestry Systems* 17(1): 13-41.

Falconer, J. 1990. Hungry season food from the forests. *Unasylva* 41(160): 14-19.

Fernandes, E.C.M., Oktingati, A., and Maghembe, J. 1984. The Chagga home gardens: a multistoried agroforestry cropping system. *Agroforestry Systems* 2(2): 73-86.

French, D. 1986. Confronting an unsolvable problem: deforestation in Malawi. *World Development* 14(4): 531-540

Fortmann, L.P. and Bruce, J.W. 1988. The daily struggle for rights. In: Fortmann and Bruce (eds.). Whose Trees? Proprietary Dimensions of Forestry. Westview Press, Boulder, Colorado. Pp. 337-341.

Freudenberger, K.S. 1994. Tree and Land Tenure: Rapid Appraisal Tools. Community Forestry Field Manual 4. FAO Rome. 45 p.

Gadgil, M. and Vartak, V.D. 1976. Sacred groves of the Western Ghats of India. *Economic Botany* 30(1): 152-160.

Grasmick, J. 1988. Land and the forest-dwelling South American Indian: the role of national law. In: Fortmann and Bruce (eds.).Whose Trees? Proprietary Dimensions of Forestry. Westview Press, Colorado, USA. Pp. 328-336.

Hoskins, M. 1982. Social Forestry in West Africa; Myths and Realities. Proceedings of the Annual Meeting of the American Association for the Advancement of Science. Washington, January 1982.

Jodha, N.S. 1990. Rural common property resources: contributions and crisis. *Economic and Political Weekly* 25(26): 45-53.

Korten, D.C. and Uphoff. N.Y. 1981. Bureaucratic Reorientation for Participatory Rural Development. NASPAA Working Paper 1. 23 p

Leonard, D.K. 1984. The Political Realities of African Management. Institute for Development Anthropology. New York. 39 p.

Menzies, N. 1988. Three hundred years of Taungya: a sustainable system of forestry in South China. *Human Ecology* 16(4): 361-376.

Mshuda, J. 1991. Misitu ya hazina - Treasury forests of Shinyanga villages. *Forest, Trees and People Newsletter* 13: 37-41.

Peluso, N.L. 1990. Towards integrated social forestry. In: Rich Forests and Poor People. University of California Press. Pp. 409-438.

Posey, D.A. 1985. Indigenous management of tropical forest ecosystems: the case of the Kayapo Indians. *Agroforestry Systems* 3(2): 139-158.

Rist, S. 1991. Participation, indigenous knowledge and trees. *Forests, Trees and People Newsletter* 13: 30-36.

Romm, J. 1980. Assessing the benefits and costs of social forestry projects. *Indian Forester* 106(7): 445-455.

Shepherd, G. 1985. Social Forestry in 1985: Lessons Learnt and Topics to be Addressed. Social Forestry Network Paper 1a. Overseas Development Institute, Regents College London. 33 p.

Siva, V., Sharatchandra, H.C. and Bandyopadhyay, J. 1982. Social forestry- no solution within the market. *Ecologist* 12(4): 158-168

Stewart, W. 1990. Institutional arrangements for investment in common property resources: examples from India. Proceedings of the Conference on Common Property. Duke University, USA, September 1990.

Subedi, B.P., Das, C.L. and Messerschmidt, D.A. 1993. Tree and Land Tenure in the Eastern Terai, Nepal. Community Forestry Case Study 9. FAO Rome. 117 p.

Thomson, J.T. 1993. Participation, Local Organisation, Land and Tree Tenure: Future Directions for Sahelian Forestry. OECD, Paris. 34 p.

Verma, D.P.S. 1988. Fuel and fodder from village woodlots: A Gujarat experience. *Agroforestry Systems* 7(1): 77-93.

Warner, K. 1991. Shifting cultivators: Local Technical Knowledge and Natural Resource Management in the Humid Tropics. Community Forestry Note 8. FAO Rome 80 p.

EXPERIENCES OF PUBLIC PARTICIPATION IN FINLAND[1]

Jari Paldanius
University of Helsinki
Finland

ABSTRACT

Public participation has been developed quite intensively in Finland since early 1980s. A number of experimental case studies have been carried out, environmental legislation has been gradually developed, and routine planning procedures have been developed, mainly in land use planning and in planning of residential areas and large construction projects.

Some of the topical challenges of public participation can be summarized as follows: A broader range of participants should be admitted. Training and guidelines should be offered for both citizens and planners. Public participation techniques for intensive involvement, negotiation and resolution of serious conflicts should be developed and introduced into routine planning processes. In order to overcome some major problems, attention should also be paid to some of the more structural aspects of planning and decision-making. For example, public participation should be integrated more closely into planning and decision-making processes. Moreover, public participation should be developed in the context of organization, for instance, in the context of 'the learning organization' and 'the environmental management system'. Planning and decision-making system is and environmental legislation should be further simplified and public participation requirements should be unified.

Key words: Public participation, Finland, legislation, environmental policy

Birger Solberg and Saija Miina (eds.)
Conflict Management and Public Participation in Land Management
EFI Proceedings No.14, 1997

1. A BRIEF HISTORY

Considerable progress has been made in public participation in Finland since the early 1980s. In the early and mid ´80s public participation was developed mainly in land use planning and in planning of residential areas; experimental case studies were carried out, and routine planning procedures were developed (e.g. Harju 1988). Since the late ´80s a number of experimental case studies on large construction projects have been arranged, mostly in the context of environmental impact assessment (EIA). The Finnish Roads Administration has been among the pioneers in the field of construction project planning, carrying out several experimental case studies (e.g. Valtatie 3... 1993) and developing its routine procedures (e.g. Leskinen 1994) since the late ´80s.

Except for land use planning, public participation in the planning of plans, programmes and policies has been paid only minor attention. However, in recent years some experimental case studies on the planning of water pollution control (Kosola, ed. 1990), refuse disposal (Saarikoski 1996) and forestry (e.g. Tikkanen 1996; Helsingin kaupungin... 1996) have been carried out. Public participation is also considered to be one of the main themes in EIA for plans, programmes and policies, now a topical issue in Finland (Ohjeet ohjelmien... 1996). Private companies have tended not to favour the more advanced forms of public participation.

In Finland public participation is defined both in general and special legislation. The general provisions cover several procedures, while the special legislation defines public participation practices in one specific procedure or type of procedure, for example in the EIA-procedure or specific permit procedures. From the 1980s on, many reforms of both general and special legislation have bee undertaken in an effort to intensify public participation. In the early ´80s some general laws concerning public access to information, involving planning and decisionmaking were passed. These include the Administrative Procedures Act, The Publications in Administrative Matters Act, and the Accesss to Public Documents Act. They deal with matters such as public access to documents and minimum standards for informing and hearing procedures. Reforms of special legislation have been carried out especially since the early ´80s. Reforms of the Planning and Building Act in the ’80s and the early ´90s encouraged public participation in land use planning. Reform of the Waters Act and the passing of the Environmental Permit Procedures Act and the Environmental Impact Assessment Act enhanced public participation in the planning of construction projects. At present, major reforms of the Planning and Building Act and permit procedures are under preparation.

2. PROBLEMS AND CHALLENGES - SIX THEMES

Now, in the mid ´90s, there is a sort of public participation “boom” in Finland. The general arguments in favour of public participation are widely accepted, many experimental case studies are being carried out, and routine planning procedures are being developed, also in new fields. However, there are still some major problems, and hence, major challenges. These problems and challenges fall within six general themes:

1. *Participants:* Who may participate? Who participates, and who doesn’t? What sort of attitudes and resources for participation do citizens and groups have?
2. *Planners and officers:* Planners and officers are responsible for planning, and also for many minor and major decisions. Moreover, they, or outside professionals, arrange public participation. What are the roles of planners and officers in the planning and decision-making process? What sort of attitudes and resources, such as knowledge, skills, and time, do they have?
3. *Public participation techniques:* Techniques are the channels, the forum, for participation. Are the right techniques used in relation to situation and objectives of participation? How are the techniques applied?

Traditionally public participation has been examined and developed mainly in the context of participants, planners and techniques. However, Finnish experience shows clearly that in order to overcome some major problems, attention should also be paid to more structural aspects, such as:

4. *Planning and decision-making process:* The process is the immediate framework and also the object for participation. What is the process like? How is public participation integrated into “proper” planning and decision-making process?
5. *Organization:* The nature of the planning organization has a strong influence on what sort of participation is needed, how participation should be developed, and how succesful participation can be. What are the organization´s functional structures, objectives, cultures and practices?
6. *Planning and decision-making system:* With legislation, the system provides the framework for individual procedures and public participation practices within each of them. How consistent is the system? Is public participation established in all of the important procedures?

2.1 Participants

One major problem in the area of public participation in Finland is still the strict selection of participants. This refers to both routine procedures and legislation. In legislation, interested parties have traditionally been narrowly defined, usually on the basis of land ownership or economical benefit and disadvantage. The definition has gradually been widened. For example, in the statutory EIA-process, enacted in 1994, all those interested have the opportunity to participate. However, in many other procedures, including certain permit and appeal procedures, the definition of interested parties is still quite narrow.

In administrative routine procedures, the selection of participants varies. Sometimes only the minimum standards of legislation are fullfilled. In some procedures the selection is quite strict, while in others it is freer. In some procedures everybody is allowed to participate, at least in one way or another.

Altogether, in spite of some advances, expanding the strict selection of participants is still one of the major challenges for legislation and routine administrative procedures in many sectors.

Another crucial challenge is to offer information, training and handbooks for participants, especially for those less educated and less resourced. Citizens are in need of both information on the subject matter at hand, e.g. planning alternatives, impacts, etc., and training and handbooks on participation: Which are the participation channels? How to act in different participation situations? In recent years some participation handbooks for citizens have been published, mainly in the field of environmental policy (e.g. Ympäristö on... 1994). The present author is currently a member of a team preparing a practical guide for those citizens who wish to participate effectively in land use and other environmental planning, especially at the local level.

2.2 Planners and officers

One major problem is that there are still many planners and officers who do not consider public participation in its more intensive forms useful. Their training and identity is obviously one reason for this. Many of them consider planning as a matter for experts, not for politicians, citizens and interest groups. Correspondingly, both planners and officers tend to regard themselves as experts and specialists rather than generalists, facilitators or mediators.

This deep-seated professional identity and planning philosophy appears hard to change. Therefore, it seems to be important to incorporate philosophy and practical knowledge of participatory planning not only into extension education, but also into primary professional education, such as training for the technical professions.

Another major problem is the fact that practical know-how on public participation is still quite slight in Finland. For example, there are only a small number of public participation professionals, most of them self-taught experts. Thus there appears to be an urgent need for both training and guidelines. Some of the most topical themes are public participation techniques, planning public participation procedures, teamwork, negotiation and human relations. Both general guidelines and special guidelines for special procedures, for example for land use planning and EIA procedure, are needed.

Generally, the best results are gained when training is attached directly to the trainees´ own work, and when an outside expert on public participation is consulted. Some promising results have been achieved by integrating tailored training into a systematic development programme, which includes an analysis of problems and development prospects, establishement of a public participation procedure, and a feedback system.

2.3 Public participation techniques

The most frequently used techniques in routine planning processes are:

- traditional techniques for informing,
- techniques that offer people a simple possibility to express their comments orally or in writing, and
- public meetings.

These techniques are also favoured in legislation.

In some cases, especially in land use planning and in strategic planning, programming and policy making, different types of joint planning groups and citizen committees have been established. Experimental case studies have made use of a wide range of techniques, including some intensive participation techniques. However, as far as I know, dispute mediation techniques have not been used.

At the moment, there seem to be at least two urgent challenges in relation to techniques. One is to develop and establish techniques which are suitable for highly controversial planning situations. Such techniques include various joint planning groups, citizen advisory committees and dispute mediation techniques. It is important to establish them also as routine practice, for instance in EIA and permit procedures. Some of these techniques are discussed in greater detail in other articles in this report.

The other major challenge is to develop and establish techniques that activate passive citizens and support participation by "weak" citizens, such as the elderly, children, youngsters, and the handicapped. Such techniques include small group conversations and theme interviews, for example interviews at old people´s homes conducted by their care personnel. Lately, some case studies have paid much attention to participation of children and youngsters, for example in the planning of residential areas.

2.4 Planning and decision-making process

Experience from case studies and routine planning procedures shows clearly that public participation should be integrated closely into all the important phases of planning and decision-making. *In this respect, one major problem is that public participation has generally been integrated into planning only at a very late phase*. Typically, citizens and interest groups have been given the opportunity to comment on completed plans only. However, over the last ten years or so, public participation has been incorporated into an earlier phase of many planning procedures. For instance, citizens and interest groups have the chance to comment on draft land use plans, and public participation has been included at a screening phase of the EIA procedure, when preliminary project alternatives are formulated. But a great deal remains to be done, as many procedures permit public participation only at a very late phase.

Another problem is the fact that the opinions and ideas of citizens and interest groups often seem to "disappear" somewhere during the process. Typically, these opinions and ideas are not published, and citizens and planners never meet face to face. At most they hear each other´s opinions from the public participation practitioner, if at all. Here, public participation practitioners act as filters between citizens and planners.

One way to solve this problem is to effectively inform all the participants, authorities, planners etc. of each other´s opinions and ideas during the process. It is also important to incorporate different opinions and ideas into plans or decision-making material at the end of the process. In our statutory EIA procedure, for example, opinions should be attached to an Environmental Impact Statement. Another solution is to introduce techniques and practices which enable face-to-face contact between citizens and planners, for example ad hoc group discussions and joint planning commitees.

2.5 Organization

In relation to public participation, two topical concepts related to organization, "the learning organization" and "the environmental management system", seem very promising. Both are widely examined and developed now in Finland.

The concept *learning organization* refers to those aspects of organization which support innovations, dialogue, learning and managing the changing situations. Generally, learning in organizations is seen as a product of several different elements. By slightly adjusting the scheme outlined by Antti Leskinen (1994), three major elements of the learning organization can be distinguished:

- Cooperation and innovations within the organization.
- Cooperation and information exchange with the outside world, e.g. with customers, interest groups, the general public and the media. Here we have the public participation aspect of the learning organization. Public participation can be seen as a crucial part of the learning organization, a source of creativity, new ideas, and knowledge concerning changes of the outside world.
- Information processing practices and methods: How to process and present information so that its pluralistic, interdisciplinary and innovative nature is maintained? For example the so called non-aggregative decision-making methods seem better suited to learning, and also to public participation in general.

"Environmental management systems (EMS)" have been developed and established both in the private and the public sectors in Finland. EMS is a framework for comprehensive handling of environmental matters in organizations. Cooperation and commitment within the organization is one crucial element of EMS. Increasing attention has been paid, however, to cooperation with the outside world (Kantola 1994). The reasons for this are partly the same as in the case of the learning organization. Public participation can be seen as one important element of EMS and, vice versa, EMS may offer a systematic framework for cooperation between organization and the outside world. Thus, one of the most crucial challenges in the field of public participation is to develop and establish participatory environmental management systems for both public and private organizations.

Moreover, combining these two concepts seems extremely fruitful. How to develop a "learning environmental management system" for organizations? Or in other words; how to develop organizations which can support innovations, dialogue and learning, and are able to manage turbulent, changing situations?

2.6 Planning and decision-making system

In Finland, one of the major problems is the incoherent and disjointed nature of the planning and decision-making system. There are number of different, partly overlapping, procedures. For instance, one big construction project may be subject to several permit procedures, the EIA procedure, two or three land use planning procedures and a number of sectoral strategic planning procedures. Each procedure may have its own arrangements for public participation, its own definition of interested parties, and often its own appeal procedure. This is partly due to the incoherent and disjointed character of legislation. However, as a rule, public participation practices are defined in a rather general way in legislation, and some administrative routine procedures are not mentioned at all. Hence, the problems of the planning and decision-making system stem partly from different planning traditions and organizational cultures.

The incoherent and disjointed nature of the planning and decision-making system brings about several problems. The money, time and manpower of authorities, planners, project developers and citizens are being wasted. It is difficult for authorities and participants to get an overall picture of projects, because they are examined piecemal in separate procedures. Moreover, because there are many procedures, each having its own public participation arrangements, it is difficult to get an overall picture of the whole process and to find out its most important phases: Where to participate and where not? At worst, an incoherent and disjointed planning and decision-making system can almost totally cancel out the results of public participation arrangements carried out in one single procedure.

One principal goal of many reforms of legislation has been to settle these problems. However, there is still much to do. The unification, simplification and coordination of legislation and planning and decision-making systems is still one of the major challenges in Finland.

Another problem is that public participation has been paid only minor attention in strategic planning, programming and policy-making. This, however, does not apply to land use planning, where public participation has been developed intensively since early ´80s. Often the most far-reaching decisions are made at the level of strategic plans, programmes and policies, and these decisions often have a remarkable effect also on project planning. Hence, in Finland one of the most topical challenges is to develop participation at the strategic level.

3. SUMMARY AND CONCLUSIONS

Public participation has been a topical issue in Finland for some fifteen years now. Experimental case studies have been carried out and routine planning procedures have been developed, mainly in land use planning, planning of residential areas, and planning of large construction projects in the context of EIA. Now, in the mid ´90s, there is something of a public participation "boom". Public participation is being practised in new fields, legislation and routine planning procedures are being developed, and a number of experimental case studies are being done.

Some of the most challenging prospects for public participation in Finland can be summarized as follows:

1. The strict selection of participants should be widened. This presupposes a broader definition of 'interested party' in legislation, for example. More and better information, training and handbooks are needed for citizens.
2. There is an urgent need for training and guidelines for planners and officers. Especially training in public participation techniques, negotiation and teamwork are needed. Philosophy and practical knowledge of participatory planning should be incorporated into extension education and primary professional education.
3. Public participation techniques for intensive involvement, negotiation and resolution of serious conflicts should be developed and introduced into routine planning processes. Such techniques include citizens' advisory committees and dispute mediation techniques.
4. Public participation should be integrated more closely into "proper" planning and decision-making. This requires, for example, establishing effective ways to publicize the opinions of citizens and interest groups, and strengthening public participation at early planning phases.
5. Public participation should be developed in the context of the organization. In this respect, the topical concepts of the learning organization and the enivironmental management system seem very promising.
6. The planning and decision-making system and environmental legislation should be further simplified, and public participation requirements should be unified. Public participation in the planning of plans, programmes and policies should be developed.

Traditionally public participation has been examined and developed in the context of participants, planners and techniques, and, to some extent, also in the context of the planning and decision-making process. If we want to establish truly meaningful participation and to overcome some major problems, we will have to pay more attention to structural aspects of planning and decision-making, such as procedures, organizations, the planning and decision-making system, and legislation.

NOTES

1. This review article is based mainly on two reports, which are not separately quoted in the text. The first, drawn up for the European Bank for Reconstruction and Development, is a summary analysis of public participation in Finland (Paldanius 1994). It comprises an analysis of legislation, public planning and decision-making procedures, and some experimental case studies. The second, made for the Ministry of the Environment, is a summary of experiences of public participation case studies in Finland (Paldanius 1996). The former is in English, the latter in Finnish. These reports were based on several case study reports and analyses on legislation and administrative procedures, which are quoted in the text only in exceptional cases.

REFERENCES

Harju, P. 1988. Yhteissuunnittelu asuinalueiden kehittämisessä [Collaborative Planning in Developing Communities]. Helsinki University of Technology, Publications of Centre for Urban and Regional Studies A 15. Espoo, Finland. 296 p.

Helsingin kaupungin metsä- ja maatalousosaston vuorovaikutteisen suunnittelun kehittäminen. 1996. [Developing Participatory Forest Planning in Helsinki]. Helsinki Green Area Division. Publications 00. (in print).

Kantola, T. 1994. Ympäristöasioiden hallintajärjestelmät paikallishallinnossa [Environmental Management Systems in Local Government]. Ministry of the Environment, Department of Environmental Policy. Publications 7/1994. Helsinki, Finland. 48 p.

Kosola, M. (ed.) 1990. Kokemuksia osallistumisesta ja vaikutusten arvioinnista vesiensuojelun suunnittelussa [Project for Participatory Planning and Impact Analysis for Water Pollution Control]. National Board of Waters. Publications of the Water and Environment Administration, series A 62. Helsinki. 129 p.

Leskinen, A. 1994. Environmental Planning as Learning. The Principles of Negotiation, the Disaggregative Decision-making Method and Parallel Organization in Developing the Road Administration. (dissertation). University of Helsinki, Department of Economics and Management, Land Use Economics. Publications No. 5. Helsinki, Finland. 162 p.

Ohjeet ohjelmien ja suunnitelmien ympäristövaikutusten arvioinnista. 1996. [Guidelines for Environmental Impact Assessment for Plans, Programmes, and Policies]. The Ministry of the Environment. (draft, 19.6.1996). 15 p.

Paldanius, J. 1994. Public Participation Information Initiative: Country Study: Public Participation in Finland. European Bank for Reconstruction and Development. February 1994. 48 p.

Paldanius, J. 1996. Kokemuksia vuorovaikutteisen suunnittelun kokeiluhankkeista Suomessa [Experiences of Public Participation Case Studies in Finland]. Ministry of the Environment / Diskurssi Oy (Ltd.). (Manuscript, to be published in autumn 1996 by Ministry of the Environment). 62 p.

Saarikoski, H. 1996. Ympäristövaikutusten arviointi jätehuollon strategisessa suunnittelussa [Strategic Environmental Impact Assessment in Refuse Disposal Planning]. Finnish Environment Institute. (Draft, October 1996).

Tikkanen, J. 1996. Taajamametsien osallistava suunnittelu. Kokemuksia MetsäRaahe - suunnitteluprojektista. [Participatory Urban Forest Planning. Experiences from MetsäRaahe Planning Project]. Finnish Forest Research Centre, Bulletin 603. Kannus. 31 p.

Valtatie 3, vuoropuhelun arviointi. 1993. [Mainroad 3, Evaluation of Public Participation]. The Finnish Roads Administration. Publications 55/1993. Helsinki. 70 p.

Ympäristö on terveytemme. Voit vaikuttaa lähiympäristöösi. 1994. [The Environment Is Our Health. You Can Influence Your Living Environment]. The Public Health Association - Folkhälsan. 94 p.

EXPERIENCES FROM THE REGIONAL NATURAL RESOURCE PLANNING PROCESS IN KAINUU

Teppo Loikkanen and Pauli Wallenius
Forest and Park Service
Finland

ABSTRACT

Public participation has been applied extensively in Metsähallitus - Forest and Park Service (FPS) for two years. A strategic level Regional Natural Resource (RNR) planning approach was initiated in 1995 for the state forests in the Kainuu region. The main goal of the RNR planning process is to develop a sustainable, widely acceptable and implementable strategic-level land use plan. This is accomplished through wide participation where all interest groups and the general public are meaningfully involved in the planning process.

The article describes the main principles of public participation applied in the FPS and outlines briefly the extent to which participatory planning has been applied in the agency. Secondly, the RNR planning process and its objectives will be explained. Then the case of Kainuu will be presented. This section explains the overall participation arrangements and public involvement in the Kainuu RNR planning process, describes the input received and its effect on the plan. Finally, lessons learned by the FPS are discussed.

Key words: Public participation, forest and park service, natural resource planning

INTRODUCTION

Public participation is an essential component of socially sustainable forestry, which in turn, is one of the three dimensions of sustainable development - ecological, economic and social - as defined by the RIO 1992 summit. Public participation enables incorporating public values to the actual objectives and means for managing publicly owned natural resources (Landre and Knuth 1993, Kweit and Kweit 1987).

Public participation has been voluntarily initiated by Metsähallitus - Forest and Park Service (FPS); no laws oblige the agency to use it in practical forest planning or

Birger Solberg and Saija Miina (eds.)
Conflict Management and Public Participation in Land Management
EFI Proceedings No.14, 1997

management. There are several reasons, i.e. changes in society, for the FPS to gear its management philosophy towards a one that is more responsive and accountable to public needs. The reasons include the strengthened role of the media, people becoming more active and environmentally aware, as well as, the growing amount of forest related manifest conflicts (Loikkanen 1994a). Accordingly, it was seen necessary for the organization to change its structure and functions along with the social changes in order to better serve its clients and ultimately, to justify its existence.

PUBLIC PARTICIPATION IN THE FPS

Since 1994, public participation has become a central approach in practicing socially sustainable forestry by the FPS. Public participation is a strategy for the FPS to become more attentive and responsive toward the values held by the various interest groups and publics regarding the managing of natural resources administered by the agency. This includes most state owned lands, i.e. 25 % of Finland's landbase.

Current day public participation in the FPS is defined as open, interactive and people oriented everyday management and planning philosophy. It offers fair and equal opportunities for those perceived as being affected by decisions to be involved and have effect in planning and decision-making, as well as in implementing and reviewing plans. In the FPS, public participation means at least informing, gathering value-based and geographic input and talking with the public and the various stake holders; occasionally negotiating or even seeking for consensus decisions might come into question. Recently, special emphasis is paid on internal participation. The agency has defined the following public participation goals for the year 1996: (1) Public participation will be applied in all major planning processes, (2) all employees will learn what public participation is about, and (3) most managers and planners will learn the basic principles and methods of public participation.

It must be emphasized that public participation in the FPS is a planning and management philosophy, not just a set of techniques to be mechanically applied in predefined planning situations. Public participation applies to the whole agency, not only to certain segments of it or individuals. The focus in public participation is in the process (Loikkanen, 1994b). Everyone interested will be listened to by the FPS, no one should be excluded, and it is the FPS's responsibility to ensure that all interested parties will be aware of their opportunities to participate.

Participatory planning, as such, is not a totally new concept within the FPS. Over the last two decades, public participation has been used nationwide by the FPS in several smaller planning projects having to do with the management of national parks, national recreation areas, special purpose forests, protected areas and wilderness areas. At the same time, it must be admitted that most of the planning processes already carried out have involved mainly representatives of more or less officially organized groups including authorities, while less organized groups including non-governmental organizations and the general public, have been mostly excluded. Only during the last two years, public participation has been applied in integrating various forest uses in a

holistic and a more systematic manner. Such planning tools include the generic scheme for shore zone planning (Oikarainen and Wallenius 1996), Landscape Planning (LP) (Hallman et al. 1996) and Regional Natural Resources Planning (RNR) processes (Hiltunen 1995).

Both the LP and the RNR planning processes are based on the principles of ecologically, economically and socially sustainable forestry. They integrate the various goals and objectives held by the environment in the legal framework governing the FPS's land use, as well as the national targets set annually by the Finnish Parliament. The LP is a tactical level forest plan which was initially developed for ecosystem planning from the ecological point of view. Currently, the LP planning approach is enlarged to encompass also the other forest uses at the local level, i.e. forest areas ranging from 15,000 to 35,000 hectares. LP planning will be implemented in all state forests during the next five years; thirty plans have been accomplished atby the end of year 1996. The RNR planning processes, on the other hand, produces strategic level plans seven all together which will cover all state-owned forests by year 2000. Currently, two regional planning processes, i.e. Kainuu and Western Finland, are under way and a third one in the Eastern Lapland region will be initiated in fall 1996. (Heinonen 1996).

The main goal of the RNR planning process is to generate a widely acceptable land useland-use plan where the national goals set for the agency, and the goals and objectives of the operating environment will be balanced. Other planning goals include: (1) gaining information on the various stakeholders and developing good working relations with them, (2) activating individuals and interest groups to participate in the planning process, (3) learning collaboratively about the goals and objectives of all stakeholders toward the use of state forests, (4) gaining understanding onof the major issues and concerns related to the natural resources and their management in the region, (5) informing the public about the FPS and the services and opportunities made available for them by the agency, (6) utilizing local knowledge, and (7) integrating public participation into agency's everyday way of doing business in the region.

PUBLIC PARTICIPATION IMPLEMENTED IN THE KAINUU RNR PLAN

The first RNR planning process was initiated in 1995 by the FPS in the Kainuu region. It is a pilot project in Europe addressing on a large scale all major dimensions of sustainable forestry. The process began by reviewing the planning process, setting goals and objectives for participation in the process, as well as, in the various planning stages and developing a participation plan. Before the planning process was started, it was presented to all FPS employees atin Kainuu and discussed with the local media representatives. In addition, brochures explaining the project and the participation opportunities were developedpublished as a part of the information exchange plan.

The FPS invited separately by letter all more or less organized interest groups (altogether 400), and via newspaper articles, and paid radio, as well as, and newspaper

advertisements all inhabitants in the planning area (85,000 people) to participate in the planning process. Participation methods were arranged and offered separately for both the interest groups and the general public. Four local and one regional workgroup were formed together with the interest groups that showed up at the initial meetings. The RNR planning project and the participation plan were presented before the actual participation was initiated. These workgroups, each consisting of 10 to 17 members, were assigned so that all the affected (by self-definition) interests would be represented in the planning process.

The public were offered various means to participate in the beginning of the planning process. The participation methods been offered included: (1.) four open houses, (2.) six information access points at the agency's customer service offices, (3.) twelve public meetings, (4.) several written comment opportunities, (5.) opportunities to comment by calling a toll free number and (6.) employees personally making contact with individuals and delivering brochures and participation feedback forms.

The various organized interests were represented by sixty-five interest groups that participated via five workgroups throughout the planning process; the publics was involved in the beginning of the RNR planning process and will be involved again in commenting the draft plan close to the end of the process, in fall 1996. Approximately two percent of the inhabitants of Kainuu did participate in the first round of the RNR planning process. All together 1,600 public comments were received, classified, analyzed and synthesized. Forty percent of the comments were received in public meetings, another forty percent in written form via mail. (Wallenius 1995)

Results of the public input were effectively publicized through local and regional media and reports were sent to everyone interested. Several media conferences were arranged and articles were written both by the journalists and the planning team members and published in local and regional newspapers. The public, the politicians, and the citizens who had signed on a mailing list, and all 400 interest groups of the area were kept informed about the planning process. They were sent feedback on the public participation input and summaries of the interest group statements, as well as feedback on how the FPS will utilize this information, how the planning process will progress, how decisions will be made, and what kind participation opportunities will be available.

A focused questionnaire was developed based on the synthesized participation input, and it was administered to 1000 randomly chosen 15 to 74 year old inhabitants of the planning area. The objectives of the questionnaire were to gain a more deeper understanding of (i) the representativeness of the concerns and attitudes expressed by the publics via the participation efforts during the first round of activities, (ii) how well the planning process and participation opportunities were known to the public and (iii) by which means the public would like to participate in the future. A response rate of 53 % was achieved after three mailings. The results are not ready to be presented in this article. In the same mailing with the questionnaire a separate inquiry form was provided for respondents to give site specific knowledge concerning the planning area. Over 100 forms were filled and mailed back.

EXPERIENCES GAINED AND LESSONS LEARNED FROM KAINUU

Experiences in public participation have been very positive. It has appeared to be a fruitful way of collaborating and cooperating within the FPS, with the public and among the interest groups. For many employees, the public participation efforts meant extra work during after-office hours and learning about new people and communication skills, but also acquiring a new attitude.

Many local employees expected the public comments to deal with two main issues, namely (1) demands to expand nature protection in old growth forests and (2) criticism on the agency's former forest management practices. Also it was believed that the media would cause the image and credibility of the agency to get even worse in the public eyes than they were before the participation with its 'media rally' was launched. (Mikkola, 1994). But as it turned out, nature protection proved to generate much less public input than initially thought. In their comments, people generally focused on local issues relating to their living conditions, employment opportunities, outdoor activities or forestry practices. Forest recreation including outdoor recreation, fishing, hunting and berry picking generated overwhelmingly the most comments and the state forests were seen for the major part as properly managed. Moreover, almost all of the outputs of the media were extremely positive and supported strongly the open participatory management approach being implemented in the RNR planning process.

In general, the participants were very satisfied with the opportunities to participate. For the public the new planning approach meant, above all, overcoming their images of an insensitive government bureaucracy, although some questioned the effectiveness of participation. The citizens' impact on the strategic choice level was ensured via the decision analysis process where a impartial consultant assessed their weightings of the criteria in the decision tree (Pykäläinen and Loikkanen 1996). The citizens did not have a very strong impact on the strategic level choice in the RNR planning process. This is due to the fact that the emphasis in the planning process was on land use allocation issues which are strategic by nature and form the frame for more detailed LP planning. Individual people do not think very strategically, per se, and that is why the strategic options with their trade-offs were not presented. Accordingly, the public elicited either very detailed or sweepingly broad comments. Most of the detailed input, which is site specific, is also quite reasonable and can thus be implemented in the LP plans. The latter, broader aspirations expressed, on the other hand, can to a great deal be satisfied by the final RNR plan.

Interest groups are more tuned to assess the impacts of a strategic level planning process and gear their statements accordingly. Nevertheless, an important finding in assessing how well different land use allocations accommodate the various interests expressed is that the FPS's current land use pattern appeared to be generally quite well-balanced.

The collaboration between the FPS and its operating environment will continue when the strategic plan is to be implemented at the landscape and stand levels. The process meant, among other things, that people feel more comfortable when talking with the FPS personnel and that the FPS employees realize that collaboration with all affected individuals and parties is not only useful but necessary. Other important

lessons learned are that FPS employees know now better now that people appreciate their work and that the new ecologically sensitive forestry practices adopted by the agency are to a great extent in line with the public expectations. In addition, the process made the public and the various interest groups more aware of these new practices.

Last but not least, one of the most important results of the extensive public participation efforts undertaken during the RNR planning process has been to be able to do research and learn from each other. Much of the insights gained in Kainuu have been utilized in the Western Finland RNR project and in developing further guidelines and teaching material on public participation. The latter includes a "Guide Book on Public Participation" and videos for managers on "How to Arrange Open Houses" and "How to Organize Public Meetings" to build up their skills and knowledge in better meeting the public needs. The future challenges include keeping both the public informed and interested to participate in the implementation of the plan, and winning the FPS employees' acceptance of public participation as a means of everyday work.

REFERENCES

Hallman, E., Hokkanen, M., Juntunen, H., Korhonen, K.-M., Raivio, S., Savela, O., Siitonen, P., Tolonen, A. and Vainio, M. 1996. Alue-ekologinen suunnittelu. Metsätalouden julkaisuja 3/1996. 59 p.

Heinonen, P. 1996. Balancing Forest Uses at Regional Level: The Case of State Forests in Western Finland. Proceedings on the International Conference on Public Participation and Conflict Management in Land Management. EFI, Joensuu, Finland. 4 p.

Hiltunen, V. 1995. Metsähallituksen aluesuunnitelma. Loppuraportti alueellisesta luonnonvarasuunnittelusta. Metsähallitus, kiinteistöpalvelut. 15 p.

Kweit, M. and Kweit, R. 1987. Citizen participation: enduring issues for the next century. National Civic Review 76: 191-198.

Landre, B. and Knuth, B. 1993. The role of agency goals and local context in Great Lakes water resources public involvement programs. *Environmental Management* 17(2): 153-165.

Loikkanen, T. 1994a. Osallistava suunnittelu ja metsäkonfliktien hallinta. *Metsänhoitaja* 4:4-6.

Loikkanen, T. 1994b. Applicability of Public Participation for the Finnish Forest and Park Service. Master's Thesis. Corvallis, Oregon. Oregon State University, Department of Forest Resources. 93 p.

Mikkola, T. 1994. Osallistava suunnittelu metsähallituksen henkilöstön kokemana. Metsänhoitotieteen pro gradu -tutkielma. Helsingin yliopisto. 147 p.

Oikarinen, A. and Wallenius, P. 1996. Metsähallituksen rantojen lomarakentamista suunnitellaan yhteistyössä sidosryhmien kanssa. *Maankäyttö* 1:38-40.

Pykäläinen, J. and Loikkanen, T. 1996. An Application of Numeric Decision Analysis on Participatory Forest Planning: The Case of Kainuu. The Proceedings on the International Conference on Public Participation and Conflict Management in Land Management. EFI, Joensuu, Finland. 7 p.

Wallenius, P. Kansalaiset osallistuvat Kainuun luonnonvarasuunnitelmaan. *Metsänhoitaja* 5:7-10.

BALANCING FOREST USES AT REGIONAL LEVEL: THE CASE OF STATE FORESTS IN WESTERN FINLAND

Petri Heinonen
Forest and Park Service
Finland

ABSTRACT

A project was launched by the Finnish Forest and Park Service (FPS) in 1995 to compile a management plan for natural resources in state-owned forests in Western Finland. The aim of the project is to compile a regional land use plan for managing the natural resources on strategic level. The plan will fulfill the requirements of ecological, social and economical sustainability.

The plan is based on up-to-date stand database. The expectations, knowledge and priorities of the public were taken into account. Stakeholders participated systematically in the project.

A set of criteria and indicators were defined to evaluate the present and future conditions of the natural resources. The classes of criteria include economy, recreation and nature protection. Each criteria is operationalized by a set of indicators. The information obtained from the public and the stakeholders is used to guide the selection and weighting of the criteria and indicators.

Three managing scenarios of land use optimizing nature conservation, recreation and wood production were built to set the limits of the land use. The fourth scenario simulates the past and present forest uses.

The numerical results for the defined set of criteria and indicators in each scenario are calculated by a cutting budget program. Another application is used to evaluate them as a whole. This application is based on the analytic hierarchy process combined with multi-object utility theory.

Based on the evaluation of the scenarios, a synthesis will be drawn. The synthesis results in commonly approved land use allocation.

Key words: Sustainability, participatory planning, multi-object planning, strategic level, land-use

Birger Solberg and Saija Miina (eds.)
Conflict Management and Public Participation in Land Management
EFI Proceedings No.14, 1997

INTRODUCTION

Finland is well-known for its vast forests: More than 80 % of the total land area of the country is covered by forests. More than half of the forests, by area, are owned by private people (farmers), one third by the state, and less than 10 % by companies and enterprises.

The forestry of Finland is, to a great degree, small-scale farm-forestry. State forests are located in the Northern and Eastern Finland, mainly on less productive soils. However, the state forests are locally very important, e.g. in providing employment. State forests, altogether nine million hectares, are managed by **Metsähallitus - Forest and Park Service**, which is a state enterprise.

The state land in Western Finland consist of **436,000 ha** of land and water which is allocated under various uses as follows:

Table 1. Land-use on state lands in Western Finland.

Nature conservation	122 500 ha
Recreation	8 500 ha
Seed and plant production	3 000 ha
Forestry	280 000 ha
Other uses	22 000
Total	436 000 ha

Most of the nature conservation and recreational areas are established by legislation. Seed and plant production areas consist mostly seed orchards. 84 % of land under forestry is forest land, 6 % scrubland and 4% wasteland. Other uses consist of areas of extractable soil resources, areas of extractable peat resources, areas under military use and other minor land uses.

The FPS employs 361 people in Western Finland. The annual turnover in 1995 was 273 million FIM and the annual profit 112 million FIM, respectively. 1 USD equals 4.6 FIM.

THE PLANNING PROCESS

Due to the present day requirement for multi-target forest management, a project was launched in 1995 to compile a management plan for natural resources in state-owned forests in Western Finland. The aim is to compile a regional land-use plan for managing the natural resources on strategic level. The plan will fulfill the requirements of ecological, social and economical sustainability.

The plan is drawn up in seven phases: 1) updating, 2) analysis, 3)scenarios, 4) synthesis, 5) visions, 6) selection and 7) control. Participatory planning is applied throughout the process. The plan was initiated in June 1995 and it is expected to be finished by the end of September 1996. The output will be a management plan (document) and land use maps of the state forests in Western Finland.

The field units updated the database in 1995. The original inventory was carried out in different times in different parts of the area. The operations, the growth and key-biotopes have been up-dated to the stand database and to the map database. These resulted in a stand database describing the present wood resources, land use patterns and special values, such as key-biotope.

During the updating, several public meetings and openhouses were arranged. These occasions resulted in valuable information about the expectations, knowledge and priorities of the public. This input is used especially in determining social sustainability. At the same time, four working groups of stakeholders were established. These groups work throughout the planning process. Each group consists of representatives of environmental authorities, municipalities, land use planning authorities, customers of the FPS, nature protection NGO's, hunters and recreational fishers.

During the analysis phase of the plan, the natural resources are studied through the SWOT-method against the three dimensions of sustainability. At the same time, a set of criteria and indicators are defined and selected to evaluate the present and future conditions of the natural resources in the region. Two kinds of indicators were defined: one to describe the present situation and another to evaluate the present and future status of sustainability. The first set contains indicators with which present value can be determined, but the development cannot be predicted. eg. visitors in an recreation area represent this type of indicators. The second set consists of indicators with which development can be simulated, eg. annual drain of raw wood.

The criteria include: 1) economy, 2) recreation (social) and 3) nature protection. Each criteria is operationalized by a set of quantitative indicators. The criteria and indicators are presented in the figure below.

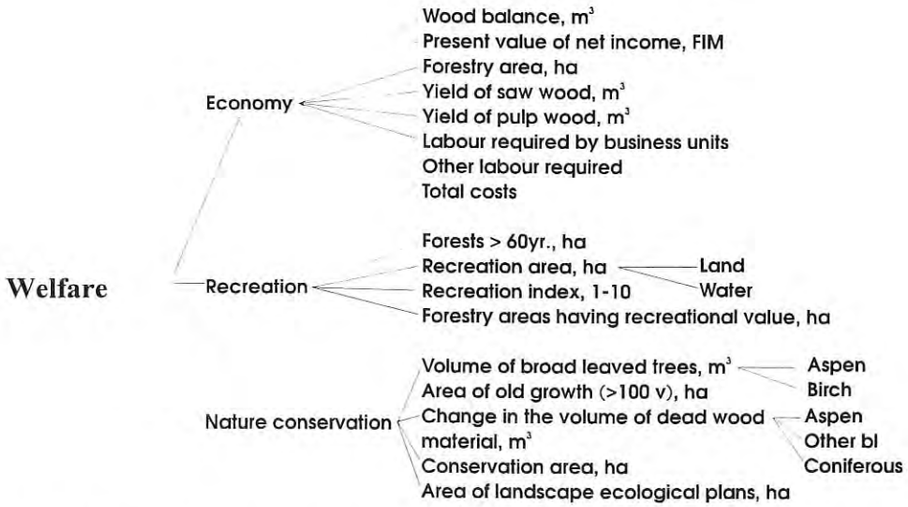

Figure 1. List of criteria and indicators.

Analysis is initially carried out by FPS units (i.e. Forestry, Recreation Services, Nature Protection). The information obtained from the public and the stakeholders via participatory planning is used to guide the selection and weighting of the chosen criteria and indicators. The analysis is also carried out by the working groups.

The whole scenario phase is presented below.

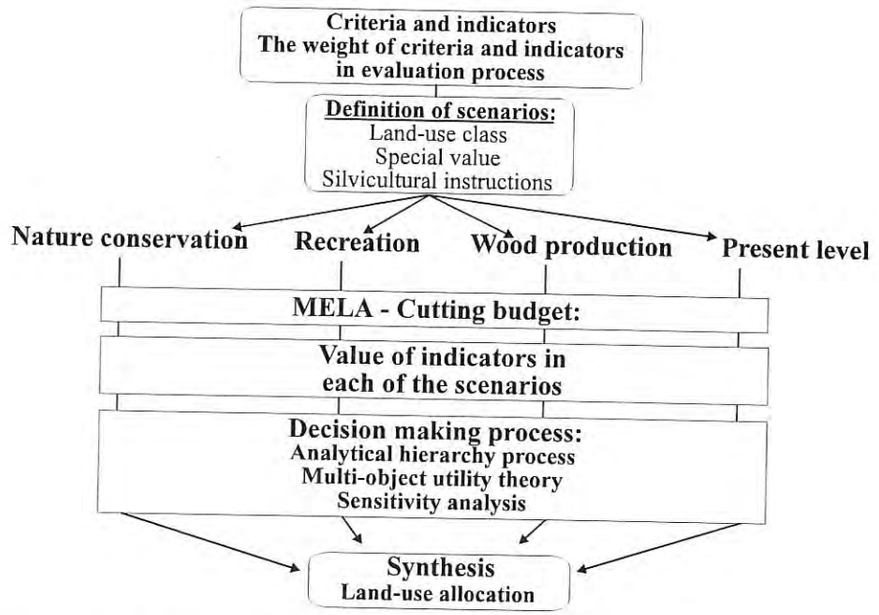

Figure 2. Flow chart of the scenario phase.

Three "optimal" managing scenarios of land use are built to define the limits for the regional natural resources as expressed through the criteria and indicators selected above. These scenarios emphasize a) nature conservation, b) recreation and c) wood production. The fourth scenario simulates the past and present level and direction of forest use.

The contents of each of the scenarios are defined by FPS employees working in the functional units of nature protection, recreation and wood production. Also the working groups of stakeholders participate in defining the scenarios.

The numerical results for the defined set of criteria and indicators in each scenario are calculated by the "MELA" cutting budget program. "MELA" is a very sophisticated program consisting of simulation and optimization (linear programming) parts.

The results of the four scenarios are evaluated against the set of criteria and indicators. Each indicator is calculated for the different scenarios. Because the indicators are not commensurate, another application is used to evaluate them as a whole. This application is based on the analytic hierarchy process combined with multi-object utility theory.

SYNTHESIS

Based on the evaluation of scenarios, a synthesis will be drawn. Synthesis results in commonly approved land-use allocation and areas with special value. The silvicultural instructions concerning each of the strata will be produced. A prioritized list of areas subject to landscape ecological plans is another output. The land use allocation is not completely geographically bound, but states the extent and variation of each of the strata.

VISION

Several alternative land-use allocation visions (i.e. strategies) which fulfill the requirements of the synthesis are produced. The tool to produce these visions is the Mela-program again. Each vision is geographically bound: a land-use map is produced. The silvicultural directions used in each of the calculations will also be made explicit.

SELECTION

Based on a similar analysis and evaluation as on the scenario-phase the alternative which best fulfills the combined goals of the Forest and Park Service and the stakeholders will be selected to be implemented during the next ten years. A constant and transparent control of activities will be carried out during the implementation period.

CONCLUSIONS

With a multi-objective planning approach a management plan which satisfies the needs of all parties can be compiled. All functional units of the FPS gain something.

Nature protection can further influence the treatment of production forests. It can point out larger critical areas which can be managed according to the principles of landscape ecological planning, as well as, smaller areas subject to special purposes.

One of the main outputs of the plan is a list and maps of potential and prioritized areas subject to landscape planning and management.

Recreational services can also direct their activities in commercial forests in a sustainable manner. Special recreational areas can be delineated with accurate operational management plans. These areas can change in subsequent regional plans.

Forestry receives a management plan which is generally approved. The plan secures a good working environment with less disturbances. Potential conflict areas have been identified and acceptable forestry activities have been agreed together with all interested parties. As a result conflicts will be utilized and proactively managed and widely accepted natural resources management plan will be produced to be implemented by the FPS.

DESIGNING A PUBLIC PARTICIPATION APPROACH TO NATURAL DISASTER CONTROL AND RISK ASSESSMENT

Renate Mayer and Andreas Ottitsch
Institute of Forest Socioeconomics
Universität für Bodenkultur, Wien
Austria

ABSTRACT

Since 1888, the Torrent and Avalanche Control Service (TACS) at the Austrian Ministry of Agriculture and Forestry has been responsible for measures against torrents and avalanches in the alpine regions of Austria. The TACS invests about ATS 1.4 billion per year for danger zone mapping and technical and biological (reforestation of mountain areas) protection projects.

Depending on the legislative situation within the individual states of Austria, the designation of different categories of danger zones may seriously inflict real estate value and thus private property rights.

The realization of technical and biological measures also means serious impacts on mountain landscape and ecosystem processes as well. In accordance to the overall increasing importance of environmental values within society, more and more concerns have been raised, connected with the activities of the TACS.

This has led to the cognition, that there is a need to incorporate modern participation techniques into the activities of this service. The Schesa-Tobel in Vorarlberg, one of the largest erosion areas in Europe, has been chosen as the object for a pilot study to assess the possibilities of incorporating public participation into the work of the TACS

An array of models of citizen participation have been tried out under different conditions in environmental conflicts all over the world.By identifying the socioeconomic context, within which a certain approach has proven successful, the applicability range for each of these techniques is to be assessed.

According to this research design, the review of experiences with various participation techniques will form one part of the project, while the an assessment of attitudes among all affected interests groups by means of questionnaires and interviews will be the main part.

The expected result of this project will be a public involvement manual for the TACS, which should be suitable as a tool for field practitioners. By integrating conflicting opinions in the planning and implementation of measures, the acceptance and efficiency of the TACS is intended to be improved.

Key words: Public participation, environmental conflicts, natural disaster control

Birger Solberg and Saija Miina (eds.)
Conflict Management and Public Participation in Land Management
EFI Proceedings No.14, 1997

1. THE TORRENT AND AVALANCHE CONTROL SERVICE IN AUSTRIA

The special "Torrent and Avalanche Control Service" (TACS)" is of particular importance in a mountainous country such as Austria. As a division of the Federal Ministry of Agriculture and Forestry, established in 1888, the TACS has several functions:

- Danger zone mapping as an essential contribution to regional planning
  - Planning and realization of technical protection measures
  - Maintenance of constructions
  - Monitoring of biological measures
- Biological forest measures to stabilize a stable forest belt as optimum protection against torrents and avalanches
- Administration of subsidies

A number of forestry experts, with special knowledge in torrent and avalanche control, are entrusted with the planning and realization of biological and technological measures and restoration of damaged constructions (Federal Ministry of Agriculture and Forestry 1995). An essential contribution to regional planning is made by the TACS within the framework of danger-zone mapping.

As a basic document for the land development and the zoning of building land in populated communities, the danger zone map describes different categories of danger zone areas a town or village, where torrents, avalanches or mudflows could appear and become an problem. In Austria, more than 1,771 communities (74% of all communities) are afflicted by more than 10,000 torrents and nearly 5,000 avalanche areas.

The dangerous areas are represented in red or yellow colors. New constructions (residential, commercial or industrial) are prohibited inside the red areas because of the danger of death. Inside the yellow areas (mostly used as agricultural areas), building is subject to special construction requirements (e.g. reinforced walls).

The protection of settlements, dwelling houses and public transport installations against natural disasters should be the most important target in land management. The TACS invests about 1.4 billion ATS/year for technical and biological measures and danger zone mapping. Technical and biological measures serves to increase the amount of land available for development in densely populated mountainous areas.

But land transactions are still very difficult to manage in the mountainous regions. Many houses and elements of infrastructure are still built in danger zones because the adequate control of housing in areas exposed to danger from torrents and avalanches is hard to manage. Since, contrary to forestry or torrent and avalanche control, regional planning is not within the authority of the Federal Government, the danger zone map ranks only as a qualified expert assessment which is not legally binding.

The mayor of a village or town is, according to the Austrian constitution, the head of the zoning authority. In most cases it may be assumed that he/she is not a specialist in the protection against natural disasters. The zoning category is also of interest in respect to land speculation because of the low-priced building-land in dangerous areas.

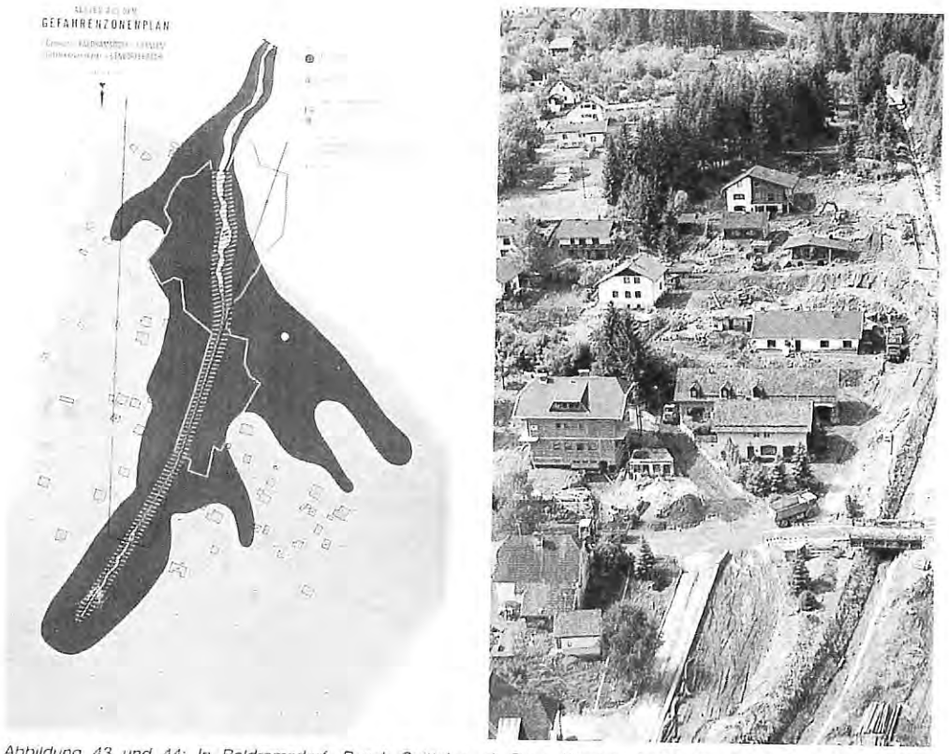

Abbildung 43 und 44: In Baldramsdorf, Bezirk Spittal a. d. Drau, Kärnten, bestätigte die Murkatastrophe 1983 eindrucksvoll den Gefahrenzonenplan der Wildbach- und Lawinenverbauung. Die im Flugbild rechts sichtbare Notbrücke

Figure 1. On the left: Danger zone map of Baldramsdorf/Spittal-Drau in the state of Carinthia/Austria; dark gray: red danger zone; new constructions are prohibited light; gray: yellow danger zone; building subjected to special provisions. On the right: A picture of the same area, taken after a torrent event in 1986, houses with in the red zone were severely damaged.

2. THE NECESSITY OF PUBLIC PARTICIPATION IN ENDANGERED AREAS

Land use conflicts in mountainous areas are the result of competing utilization of natural resources.

The history of the development of the construction in avalanche and torrent hazard areas shows that endangered areas are currently increasing. The lack of legal authority to the danger zone maps still results in the possibility of building in endangered areas.

The conflicts between TACS, Regional Policy, Forestry and the persons concerned show the necessity of public participation.

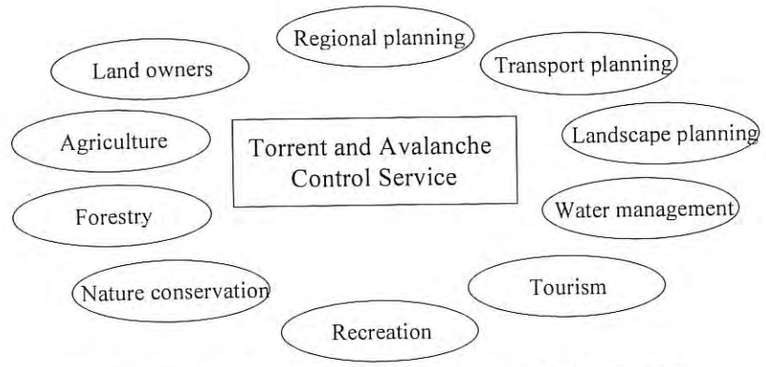

Figure 2. Interests involved in or affected by plannings of the TACS.

One characteristic example, where conflict-management is necessary in the future to protect settlement and infrastructure, is the Schesa-Tobel near Bludenz/Vorarlberg.

3. THE HISTORY AND DEVELOPMENT OF THE SCHESA-TOBEL

In former times, the forest of the Schesa-area protected the inhabitants of Buers, their settlements and public installations from torrents and mud flow, and the soil was protected from erosion. At the end of the 18th century, extensive clear cuts of 20 ha started an erosion process and led to the development of the so- called Schesa-Tobel. It is now the biggest erosion site in central Europe.

The area is located in the state of Vorarlberg in the westernmost region of Austria. (Figure 2).

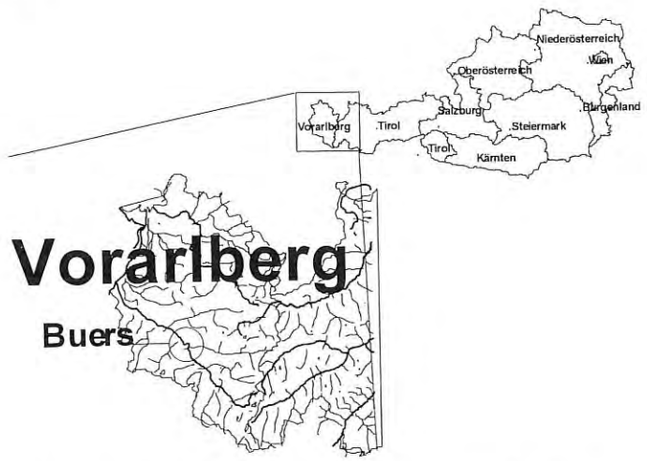

Figure 3. Location of Buers/Bludenz - Vorarlberg, Austria.

At the end of the 18th century, the village of Buerserberg in Vorarlberg wanted to separate from the village of Buers. A conflict about the financial compensation for the value of community property between the two villages started and resulted in the clearcutting of 20 ha of forest by the inhabitants of the lower part of the village, the present-day Buers. An erosion area (Tobel) of 0,8 km^2 was formed and 50 mio. m^3 of erosion material was accumulated (Aulitzky 1994).

Today, the Schesa-Tobel is also a site of special scientific interest (an individual natural phenomenon with human influence) and its preservation is also of public interest.

On the other hand, there are economical interests in sand and gravel working and the Schesa Tobel has been used as a quarry since 1964.

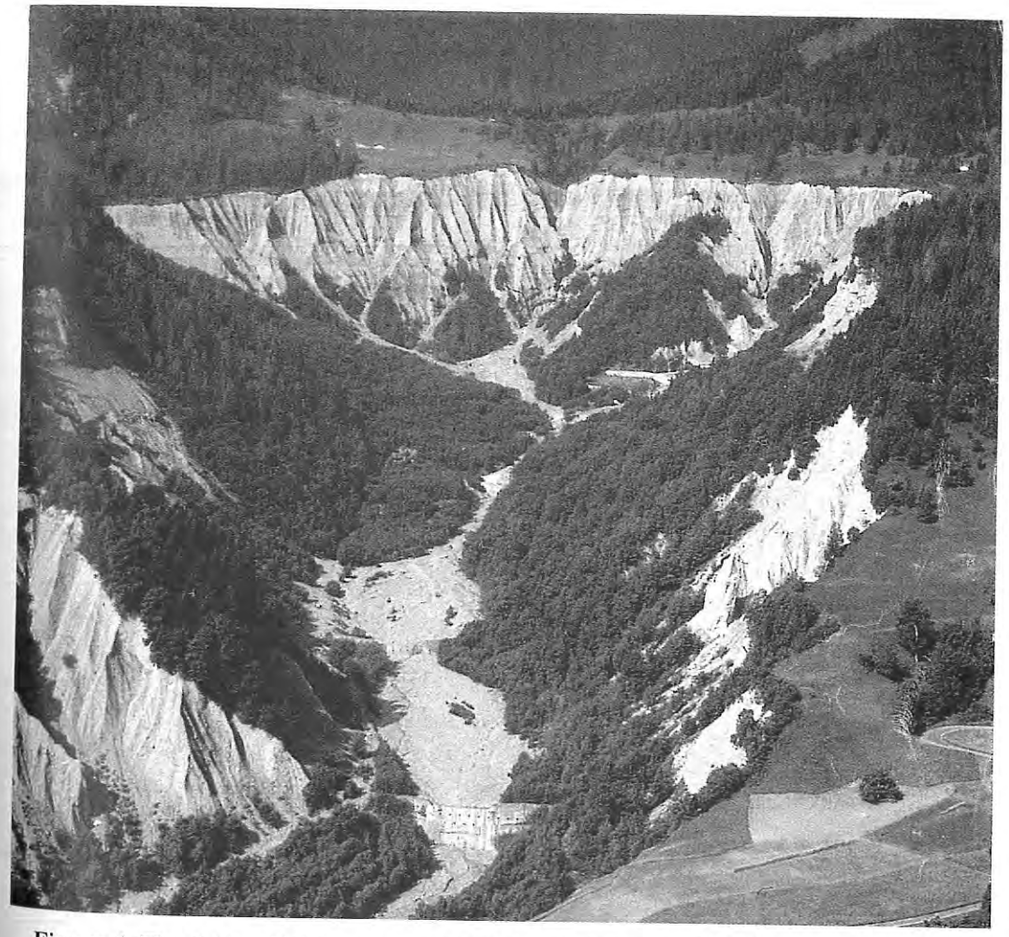

Figure 4. The Schesa Tobel area seen from the north (source: OEROK 1986).

Figure 5. Escarpment edge of the Schesa Tobel.

Figure 6. Part of the deposition area of the Schesa Tobel.

Figure 7. Escarpment edge of the Schesa-Tobel.

Figure 8. View of the village Buers from the escarpment edge.

4. CONFLICTS AT PRESENT

Today, the conflict potential increases between nature conservationists and TACS. The reason is the necessity of technological measures as danger prevention to protect 200 one-family houses at the alluvial cone of the erosion area, in contrast to the economical interests in gravel working and the interests to conserve the Schesa-Tobel as a natural monument. Until 1976, more than 500 million OES were invested in improvement-projects to stabilize the area.

The question who pays for these measures of protection and what kind of project would be the best solution for the the Schesa Tobel and the inhabitants of Bludenz, has to be discussed as soon as possible and has to involve all affected interests.

5. POSSIBILITIES OF PUBLIC PARTICIPATION IN THE CASE OF THE SCHESA-TOBEL

A process of citizen participation would be the most suitable method to resolve conflicts of different interests, like, for example, the situation in Bludenz.

The process of participation depends closely on the aims and frame conditions (requirements) of the overall planning process.

The main questions are: *"What is the social base and aim of collective action"* (Scott 1990: 132) and *How to involve citizens into the panning process?* The ideal way of democratic planning is a dialog between inhabitants and planners.

The Motivation for Participation:

- public announcement of the planners' and government's aims and activities
- incorporation of public interests into the planning process
- mutual acceptance of the persons concerned and pressure groups
- promotion of joint responsibility
- forming of workshops (for the different interests)

The timing of the public participation process: There are two possibilities when public participation should start:

a) from the beginning of the planning process on

b) after the first planning concept (presentation of the planning concept), hearing of the statements and therefore integration of the persons concerned.

It is important for the selection of performers that organization-groups (conservationists, hunters, etc.) and non-organized interest groups (tourists, people who are retired, teenagers) must be integrated into the planning process.

The demands for the participation process in Bludenz include:

• public information about aims and planning-issues:
  - official public information, press reports
  - written information about the project, written inquiries
  - legal opportunity for the public to inspect the plans of the project inspection of the planning area (to explain the dangerous areas with planners and persons concerned)

• the acceptance of central propositions:
  - release of planning concepts for inspection and comments
  - reply to propositions and objections
  - round tables and meetings to get new information and exchange information
  - attendant committees
  - discussions, interviews, questionnaires
  - seminars, colloquies, public forums
  - competitions

The members of the committee should include all interest groups.

Following points have to be checked for the selection of the participants:

- interest at the participation process
- possibility to impart technical knowledge
- possibility to stop the realization of the project
- objection of property - decisions

Necessary considerations are:

The Cooperation of the population:

- informal participation
- general cooperation

Interests to be considered in connection with the further use of the Schesa-Tobel: regarding protection against natural disasters include:

- nature conservation,
- landscape preservation
- regional planning (zoning around the "alluvial cone")
- resource exploitation (gravel)

6. GENERAL REQUIREMENTS FOR PARTICIPATION PROCESSES

The two general demands for participation-processes are equal opportunities to be integrated into the planning process and competence as a basis to make decisions and arrive at solutions.

To put this into practice, requires a participation process which involves qualified representatives of different groups from the overall population. The other part is the knowledge of forestry representatives from the TACS, nature conservationists, property-owners, inhabitants and moderators etc.) which must be integrated and applied.

In the future, the challenge of the planing of TACS-projects is to find the right way to integrate these principles and to learn to be as adaptable as possible.

Handicaps of participation processes to projects of the TACS. The planning and realization of general projects could be delayed:

- lacks of technical competence and farsightedness
- forming of groups who disturb the participation process
- absence of people concerned
- non-performance of ideas and interests
- discrepancy between frame conditions and intentions (monetary and regional view)

The success of planning and realization of general projects of the TACS recently has depended on every cooperating person.

7. RESEARCH APPROACH

In order to design participation approaches appropriate for the TACS's operational context, the presented project will be taken out in a three-phased approach.

First, an evaluation of existing techniques, based on documented experiences, will be performed and the different approaches will be classified according to the socio-economic context of their applications.

In the second phase, a survey will be performed in order to assess the socio-economic context of the TACS's operation environment.

In the last phase of the project, the results of step one and step two will be combined to develop a catalogue of participation approaches, which seem suitable for the special requirements of the TACS. The final result of the project is intended to be published in the form of a "Participation Guidelines Handbook" for the TACS.

8. DETAILS OF THE PROPOSED PROJECT STEPS

8.1 Evaluation and classification of existing approaches

8.1.1 The socio-economic context of participation

Acknowledging the fact, that there is no single participation method which might be appropriate to all possible situations, the presented research design is based on a set of assumptions about the factors of relevance for participation and conflict resolution processes.

The degree, to which an individual's personal interests (working and living conditions) are affected by a planned project, is considered to be among the most determining factors for that individual's tendency to actively get involved in the process. Next there are general values and attitudes of people, which are of relevance for their performance in their social environment. The representation of progressive or more conservative elements may serve as a sort of indicator in this context. In the case of the TACS, also values connected with the perceiving of nature and landscape may be of interest.

Furthermore, the level of education, income and other factors, which determine an individual's position in society are of interest, since results on the actual involvement of people in offered participation possibilities show, there seems to be more interest in public involvement among members of the relatively well educated, economic middle class.

On the other hand, the individuals' involvement in public life, either formal or informal, cannot be seen as determined only by factors, which may be assessed on the individual person's level, but more so as a result of factors, that may only become relevant at the group and community level. The latent level of organisation within a community may be assessed by parameters, such as the membership in non-political organisations, where people of common interests (e.g.: sports, music, dancing, volunteer fire-brigade) come together in regular intervals and where they may communicate about these interests, but also about other issues of interests to their lives. In the advent of new developments, these existing social networks may serve as cores for the involvement of new movements, like civil rights or grass roots groups. The idea here is that due to their non-political nature, these organisations may be used as distribution channels for information about issues which may affect the community without having to face the prejudices or adversary feelings that may be related to information, which is presented in a clearly political context (e.g.: a political party's bulletin, political meeting). People might also be more willing to trust or help persons, whom they have known for a considerable amount of time, than a person, who approaches them for the sole purpose of gaining support for an issue, which up to that day may not have been of interest for them. Evidence for these assumptions was found in the results of a German study, where protest activities in connections with low-level jet fighter training flights were evaluated in this context. These results clearly showed that there was a higher level of activities in communities with a higher level of non-political organisation (WZB 1992).

8.1.2 Factors of interest in evaluating and classifying existing techniques

According to the above-mentioned considerations, a list of parameters to be assessed has to be established, which will continue to serve as indicators for the following criteria.

8.1.2.1 Democratic and technocratic elements of the process

Under this topic it has to be assessed how the problem of arriving at an informed decision is solved with the specific technique. The amount, to which the final decision is determined by technical expertise on one hand, and the representation of affected interests on the other hand, are here of special interest. The way to assess this may be by comparing, how much the final outcome of the planning process may differ from the initial positions of affected parties and planning technicians.

8.1.2.2 Level of participation in the process

The levels of participation in a process range from mere information of the public to actual self-governance. These different levels are usually displayed in the form of

"participation ladders" (Connor 1993) or similar. While mere information about the planner's intention may not be sufficient any more, full self-governance may not be appropriate in all cases either.

8.1.2.3 Selection of participants

The way in which participants for the process are recruited is also of interest. Pragmatic approaches to participation tend to base the recruitment process on the idea of involve whoever cries loudest, thus determining the relevance of a group on their ability to articulate their interests in public. The problem with this method is, that it may neglect other interest groups which up to now have not been able to articulate themselves, thus even increasing the danger for these groups to be further neglected. It is also hard to differentiate between the group's specific and the individuals' strictly personal interests with this method. Other approaches to participation try to base their recruiting on sophisticated selection processes, similar to those used in opinion surveys, or the recruiting of jurors for court (Dienel 1992). These methods aim at mirroring the actual distribution of interests within a society in the participation process and at excluding personal interests. The problem here lies in assessing the interest landscape within a society, which can only be based on assumptions by the person or group designing the process.

Each of these two basic approaches at recruiting may be appropriate under a specific set of circumstances, therefore neither of them will be excluded as a possibility in the project.

8.1.2.4 Requirements for the participants

Different forms of participations demand different amounts of input, both material and immaterial, from the participants. Whether it is the need to acquire technical information about the planning subject, which demands a certain level of education on behalf of the participant, or just the amount of time, which has to be invested, these are factors that may influence an individual's willingness or even his/her ability to get involved into a participation process.

8.2 Assessing the socio-economic context for the TACS's operational environment

In order to design an approach for introducing participatory techniques into the operations of the TACS, it is necessary to perform a survey on the attitudes of the different actors, who are directly or indirectly involved into the work of the TACS.

Two main groups of actors can be identified. On one hand, there are those, who are members of the political-administrative-system (PAS). These are the members of the government at different levels (community - state - federal) and the members of

various branches of the public administration (e.g. TACS, Forestry, Conservation, Regional Planning).

On the other hand, there is the public, or more precisely put, the different publics, that are affected in one way or another by the TACS's activities, each representing a specific set of interests (e.g. agriculture, forestry, nature conservation, resource exploitation, settlement).

The planned surveys will be both aimed at assessing the situation for the case study project "Schesa-Tobel" as well for the work of the TACS in general.

8.2.1 A survey on attitudes of members of the PAS

Expert interviews (structured interviews) will be used to collect information on the attitudes of the members of the PAS. For the process around the "Schesa-Tobel", the actors can be identified from official documents. Their number is reasonablye small, which makes it possible to interview them all. For the general operation environment of the TACS, interviewees will be selected based upon results from other studies on the PAS in Austria (Krott 1993).

The identification of informal interests, both personal and institutional, of members of the PAS and the discrepancy between these and their formal tasks will be the main goal of this survey.

8.2.2 A survey on attitudes of the public(s)

In order to identify the attitudes of the public, two kinds of assessments will be performed. The citizens of the affected villages of Buers and Buerserberg will be surveyed using questionnaires. The survey will be made in accordance with local officials (mayors, members of community councils), and announcements in local newspapers should help to assure as high a return rate as possible.

In order to get a broader view of the citizens' attitudes towards the TACS, representative telephone surveys will be undertaken. Whether this will be done only for the state of Vorarlberg or also in other Austrian states will depend on the final decision on funding for the proposed project.

8.2.2.1 Issues for the survey in affected communities

Personal interests - exposition to threats by catastrophic events
Since the risk situation in the affected communities is already well assessed, this information may also be obtained from the address of the person, although the anonymity of the questionnaire may be a problem here. Nevertheless, it is interesting to obtain feedback on the individual's knowledge about personal risk situation or a personal assessment of the situation.

Knowledge about the planned projects
The citizens' level of knowledge about planned projects in connection with the "Schesa-Tobel", may serve as an indicator of the efficiency of information activities on behalf of the TACS and other institutions involved so far.

General values and attitudes
This battery of items is intended to gather information on the individual's personal political background. The assumption here is that certain political positions, whether an individual tends to favour more progressive or more conservative values, for example, may be an important factor for his or her preferences regarding the involvement into public life.

Involvement in community life
As has been mentioned above, the latent level of organisation within a community is seen as an important factor for public action. People will be asked about their membership in non-political institutions, in order to get an overview of this item. Whether or not the membership in definitely political organisations or movements will also be assessed still has to be considered. On one hand, this seems to be just a natural completion of the whole battery of items, on the other hand, that question might raise sentiments of distrust, which could reduce the return rate.

Personal living conditions
Education, profession, marital status, the number of children or other dependants, are parameters determining the living standard of an individual. These items also allow a rough estimation of a person's financial situation, which cannot be asked directly. As studies have shown, these are also of high relevance for a person's willingness to get involved in certain forms of public participation, therefore, they will also be a part of the questionnaire.

8.2.2.2 Issues for the telephone survey in other communities

The telephone survey to be performed will concentrate on basically the same issues as the questionnaires in the affected communities, with the exception, that the questions on knowledge about the actual projects will be replaced by questions on knowledge about the activities of the TACS in general.

The selection of communities for this survey will be based upon records of the TACS regarding the amount of public funds invested into protecting measures in these communities.

8.3 Development of Participation Guidelines for the TACS

Based on the analysis of existing techniques, performed in phase one of the project, and on the assessment of special conditions for operations of the TACS, which will be derived from phase two, phase three of the project will result in the development of a set of techniques, that seem appropriate for the work of the TACS. These techniques and information about their selection and implementation will the be published in a

"Participation Guidelines Handbook", which is intended to be issued to field practitioners of the TACS. Eventually, it will prove necessary to offer additional training for members of the TACS in the field of public participation and conflict resolution.

The general structure for the procedures suggested in the intended "Participation Guidelines" will consist of five basic elements. First, an assessment on social parameters in the intended project area will have to be performed. From the results of this task, information on the appropriate instruments may be obtained. The chosen set of techniques will then be applied as part of the planning work of the TACS. After thise process, an evaluation will have to be made. The result of each evaluation may then be used to perform necessary adaptations on the inventory of techniques in order to obtain better results in their implementation. Over time the TACS will thus be able to build up a database of well documented case studies, which will also be of interest to other branches of public administration.

8.4 The role of public participation in risk assessment and disaster control

Whether a torrent or an avalanche, for example, represents a threat for a settlement is something that cannot be decided upon by democratic vote, since these phenomena do not adhere to democratic rules. On the other hand, it can be argued that there is never absolute technical certainty in the assessment of threats posed by natural phenomena and therefore of the level of risk that remains.

For example, the measures of the TACS in Austria are by law required to provide protection against events, that occur, statistically, every 150 years. On one hand, it has to be admitted that real statistics do not exist very often for these phenomena and therefore other, more intuitive methods have to be used to assess these risks, so that some uncertainty remains. On the other hand, an event, which statistically occurs every 1000 years may just as well happen the next day, thus rendering even the most elaborate protection measures useless.

The level of risk, which a group or an individual is prepared to take in regard to a dangerous situation, is therefore something that may be easily imagined to be left to the responsibility of the affected persons. The role of the technical expert would then be to prepare all the information required for an informed decision.

The democratic legitimization, which means the majority vote for projects, is not enough to realize technical projects (for example, railways, powerplants or in our terms the projects of the TACS to prevent natural disasters).

Public participation is a great part of democracy, but not a compensation for the competence of policy and government, even though final decisions are made by the government.

The rights of non-governmental parties must also be regarded and guaranteed. Any lack of public participation in planning processes will finally reduce the people's trust and identification with the planning projects and its results.

Public participation in risk assessment and danger protection could be aimed at improving the knowledge of the public about the threats of events like torrents or avalanches, and help to increase the personal responsibility for the consequences of land management activities that influence factors relevant for these dangers.

REFERENCES

Aulitzky, H. 1994. "Naturkatastrophen hausgemacht". Tagung der OEsterreichischen Gesellschaft fuer Oekologie, Salzburg.

Bachmann, P. et al. 1996. Neue Wege in der forstlichen Planung. Umwelt-Materialien Nr.45 Wald. Bundesamt fuer Umwelt, Wald und Landschaft (BUWAL) Bern.

Bernasconi, A. et al. 1996. Fallbeispiele zur ueberbetrieblichen forstlichen Planung. Bundesamt fuer Umwelt, Wald und Landschaft. Bundesamt fuer Umwelt, Wald und Landschaft (BUWAL) Bern.

Bundesamt fuer Umwelt, Wald und Landschaft. 1996. Handbuch Forstliche Planung. Bern.

Burkart, R. 1993. Public Relations als Konfliktmanagement. Wien.

Connor, D.M. 1968. Strategies for Development. Victoria, B.C., Canada.

Connor, D.M. 1987. Diagnosing community Problems. Victoria, B.C., Canada.

Connor, D.M. 1990. Citizens Participate. Victoria, B.C., Canada.

Connor, D.M. 1993. Understanding your Community. Victoria, B.C., Canada.

Dienel P.C, 1992. Die Planungszelle; 3. Erweiterte Auflage; Westdeutscher Verlag; Opladen.

Federal Ministry of Agriculture and Forestry, 1990. The Forests of Austria, Vienna.

Federal Ministry of Agriculture and Forestry, 1995. The Forest - the Green Core of Austria, Vienna.

Krott, M. 1990. OEffentliche Verwaltung im Umweltschutz, Ergebnisse einer Policy-Analyse am Beispiel Waldschutz. Wien.

Locumer Protokolle 73/93. 1995. Mediation als politischer und sozialer Prozess, Tagungsdokumentation der Evangelischen Akademie Loccum.

OEROK, 1986. Raumordnung und Naturgefahren; Schriftenreihe der Oesterreichischen Raumordnungskonferenz Nr. 50; Wien.

Prucker, H. 1976. Unterlagen fuer die Beurteilung der Gefaehrdung des Ortes Buers durch die Schesa. Diplomarbeit am Institut fuer Wildbach- und Lawinenverbauung der Universitaet fuer Bodenkultur. Wien.

Rucht, D. 1982. Planung und Partizipation. Buergerinitiativen als Reaktion und Herausforderung politisch-administrativer Planung. Muenchen

WZB, 1992. WZB-Mitteilungen Nr. 58, 12/92, Wissenschaftszentrum Berlin fuer Sozialforschungen, S. 9 ff., Berlin.

EVERY PARTICIPATION PROCESS IS UNIQUE: NEW EXPERIENCES IN SWISS FOREST PLANNING

Christine Egli, Andreas Lietha and Urs Geiser
University of Zurich
Switzerland

ABSTRACT

The federal forest legislation of 1991 induced profound changes in the Swiss forest development planning. A key innovation brings along increased possibilities for public participation. But what is meant by participation? And what are the crucial factors shaping participation practice? Based on theoretical considerations and the experiences from three case studies, the present paper first outlines the significance of the institutional framework of participation processes. It then briefly discusses the constitution and representativity of participating groups, the roles and competences of the involved, the identification and management of conflicts, and the implementation of the results emerging from the process.

Key words: Public participation, forest planning, conflict management

FOCUS OF THE STUDY

What is meant by participation? How can the success of participation processes be analysed and judged? And what are crucial factors shaping the practice of participation? These questions formed the starting point of the present study on participation in Swiss forest development planning. It was part of the Programme FLAM (Flankierende Massnahmen des Walderhebungsprogrammes), financed by the government and started in 1993 to enhance the implementation of the new federal forest legislation in the Cantons.

The study focuses on accompanying and analysing the forest development planning projects in Guerbetal (Canton Bern), Kerns (Canton Obwalden), and Irchel (Canton Zurich). All of these pilot planning projects started in 1994. They cover forested areas in 1 to 15 communities, the portion of private lands in one case being very small, in the other cases amounting to the greater part of the land.

Birger Solberg and Saija Miina (eds.)
Conflict Management and Public Participation in Land Management
EFI Proceedings No.14, 1997

THEORETICAL CONSIDERATIONS

There is a broad range of theoretical concepts on the macro orand micro-level of social structures and processes referred to in participation research. Based on the ideas of Juergen Habermas, one normative theoretical frame suggests fairness and competence as guiding principles for participation: People should have equal access to any participation activities, including conflict resolution, and the process should ensure that relevant knowledgeinformation on the subject and on suitable procedures is taken into consideration. It seems to be a promising undertaking to supplement this normative level with a descriptive and analytical level based on the knowledge in qualitative social research. For up to Until now, little research has been done on first hand experiences of the people involved in participation processes.

INSTITUTIONAL FRAMEWORK

After a timeperiod characterized by an alarming increase in natural diesasters, the Swiss forest law of 1874 aimed above all aimed at stabilizing the forested area and its function of protecting people. Inside this frame, decisions on forest development were mainly madetaken by the heads of forestry districts. More than a century later, the federal forest legislation of 1991 tries to meet various new demands by bringing along a system of forest development planning, with increased possibilities for public participation. Forest development planning refers to a regional level (usually forest districts) and covers areas owned by public and private entities alike. According to the minimum participation requirements of the federal legislation, the responsible planner shall

- inform the public properly,
- accept suggestions
- release draft development plans for public scrunity, and
- answer suggestions and objections.

The 26 Cantons of Switzerland are in the process of issuing their own forest legislations in compliance with the requirements of the federal legislation. This means that each Canton will have it's own planning and participation procedure.

In most Cantons, the district foresters are in charge of the forest development planning. Therefore, their views and skills prove to be a key factor in shaping the practice of participation. The following paragraphs illustrate some of the key questions to be handled In the planning and participation process.

CONSTITUTION AND REPRESENTATIVITY OF PARTICIPATING GROUPS

Theoretical approaches call for an equal opportunity for the people to become involved in the participation process. In practice, a selection process usually takes place. One of the key questions seems to be how to make this selection and how to guarantee a maximum of fairness in the process. Should representativity be an object and how should it be striven for? In all case studies, exclusively organized interest groups and political or administrative representatives participated actively in the work groups. But organized interest groups account for just part of the forest users. The question remains how non-organized interest groups can be given a chance to get involved.

THE ROLES AND COMPETENCES OF THE INVOLVED

It is very important that the people involved in participation processes know about their roles and competences. Based on the idea of ensuring rational argumentation and decision-making, many participation models describe the different roles:

- the planner
- the affected parties/the stakeholders
- the chairperson/facilitator in the discussions
- the mediator in conflicts
- the expert

In one studied project, the head of the forestry district, ın charge of planning, took several of these roles (planner, chairman/facilitator, expert and affected party), which was quite demanding. In addition, some of the affected parties were expected to give expert information. In decentralized, small scale planning projects, it seems to be difficult to follow very elaborate models distributing tasks among the involved. As long as the roles, tasks, and competences are transparent during the process, this may work out well.

IDENTIFICATION AND MANAGEMENT OF CONFLICTS

It is one of the key tasks in participation processes to identify and deal with conflicts. In line with the theoretical considerations discussed above, user conflicts in forest planning are viewed as social phenomena. Within a part of the Swiss forest planning discussion, this view has been competing with a concept proceeding from territory and territorially based uses, or «forest functions», as the key to understanding and dealing with conflicts. Reflecting this ongoing discussion, the concept of conflict used by the planners in the case studies is not very clear.

IMPLEMENTATION OF THE RESULTS OF THE PARTICIPATION PROCESS

The Swiss are experienced in traditional forms of participation in democratic decision making, e.g. voting. Contrary to these traditional forms, decision- making in modern participatory processes is more complex and there remains a good deal of uncertainty about the final decision and implementation of the results. The forest development plans are usually submitted for approval to the Cantonal government by the responsible forest department. Many issues are not specified in detail but are to be implemented by the district forester. In addition, the implementation of the results can be prevented by legal claims of the forest owners or other pressure groups. Participants are often aware of these uncertainties and join the process with a sceptical views. Responsible planners and governments are challenged to reduce this scepticism by officially evaluating the work done by the participating groups and by implementing the results properly. The higlhly decentralized organization of Swiss forest development planning facilitates the control of decisions and implementation.

CONCLUSIONS

The case studies show that every participation process is a unique experience, the success of which cannot be programmed by standard procedures. These processes depend heavily on the aims and the knowledge of the responsible forest planners and the others involved, but also on the available resources and the varying institutional and regulative framework in each Canton. The present shift from a technical view of forest planning towards a concept of primarily social processes presumably accounts for some of the difficulties encountered in the participation processes. But it also renders possible new experiments of co-operation in the field of forest planning.

REFERENCES

Bundesamt für Umwelt, Wald und Landschaft (BUWAL) 1996. Handbuch Forstliche Planung. FLAM-Walderhebungsprogramm (WEP) 1992 -1995, Modul Waldfunktionen/Planung. Dokumentationsdienst BUWAL, Bern.

Bundesamt für Umwelt, Wald und Landschaft (BUWAL) 1996. Fallbeispiele zur überbetrieblichen forstlichen Planung: Praxishilfe. FLAM-Walderhebungsprogramm (WEP) 1992 -1995, Modul Waldfunktionen/Planung. Dokumentationsdienst BUWAL, Bern.

Habermas, J. 1988. Theorie des kommunikativen Handels. 2 Bde. Frankfurt am Main: Suhrkamp.

Ortwin, R. and Webler, T. 1995. Der Kooperative Diskurs: Theorie und praktische Erfahrungen mit einem Deponieprojekt. In: Konfliktkommunikation: Dialog zwischen Projektplanern und Betroffenen. Schriftenreihe des Österreichischen Wasser- und Abfallwirtschaftsverbandes, Heft 97. Wien.

FOREST POLICY AND LAND USE PROBLEMS IN TURKEY

Canturk Gümüs
Black Sea Technical University
Turkey

ABSTRACT

Turkey has approximately 20.2. million ha. forested land, which represents over a quarter of the total land area. However, not all of the forest area is productive, only 8.8 million hectares are efficiently used. The forested land is decreasing rapidly because of deforestation, resulting from the misuse of lands, population growth (the current population is 60 million people), non-scientific forest policy and finally, the lack of participation of the people in land management decisions. In effect, most of the land that should be used for forests is currently used for other purposes.

Key words: Land use, forest policy, Turkey

1. INTRODUCTION

In general, there are three major land use categories in Turkey: agricultural land, forest/ woodland and other categories, the bulk of which is pastureland. The type of land use is determined by scientific principles (Istanbullu 1979). These principles are called "land ability classification" (Istanbullu 1979). Turkey has great problems with land use, which can be attributed to population growth and the ownership system.

In Turkey, especially due to population growth, land use is intensified at the expense of nature and natural environment. Wherever we look, land has been encroached on because people needed more and more space for agriculture, pasture, towns, and thus the forests were pushed back.

The Turkish ownership system is very complex, 99% of all forests are in state ownership (Eryilmaz 1995, Özdönmez at al. 1991). The state administers and manages all affairs relating to forests. On the one hand, all agricultural land is privately owned, but on the other hand, pastureland is collectively owned. The diversity of ownership inevitably leads to conflict over land use. The dominance of the state in the ownership

Birger Solberg and Saija Miina (eds.)
Conflict Management and Public Participation in Land Management
EFI Proceedings No.14, 1997

of the forests is not compatible with the traditional rights developed by the villagers over the years, in fact the forest villagers think that forest located around the village is owned by the local communities.

This study is intended to examine the status of current land use policies and the impact of forest policy on land use in Turkey.

2. LAND USE IN TURKEY

The total land area of Turkey is approximately 77.9 million hectares (ha), of which forest and woodland is estimated to account just one-fourth (25.9%), or 20.2 million hectares. In addition, there are over 27.5 million hectares of agricultural land (35.3%) and 23.9 million hectares of pasture, grasslands, ranges etc. (30.7%) and 6.3 million hectares (8.1%) of all other categories (State Institute of Statistics), 1994). The area of built on land is not known, but it is increasing at the expense of the other categories. Table 1 shows the proportion of land use categories:

Table 1. Land use in Turkey.

	Land area (excl. water) (million ha)	%	Land area per capita ha/cap
Forest	20.2	25.9	0.34
Agriculture	27.5	35.3	0.46
Pasture	23.9	30.7	0.40
Other	6.3	8.1	0.10
Total	77.9	100.0	1.30

The total area of forest and woodland is only a partial indicator of the importance of the forestry sector to the country, however, the total area of the productive forest in Turkey is only 8.8 million hectares or 11.1% of the total land area.

In Turkey, land is not used according to the land ability classification, in fact, most of the land areas that should be used as forest land are used for other purposes. Table 2 shows the land ability classification in Turkey (Gülen et al. 1981).

Table 2. The land ability classification in Turkey.

Land Use	Land Ability Classification	Area (mil. ha)	%	Total (mil. ha)	%
Suitable for agri.	I	5.0	6.4		
	II	6.8	8.7		
	III	7.5	9.7	26.5	34.1
	IV	7.2	9.3		
Unsuitable for agri.	V	0.2	0.2		
	VI	10.2	13.2		
	VII	36.2	46.6	51.3	65.9
	VIII	4.6	5.9		
Total	—	77.8	100.0	77.8	100.0

Table 2 indicates that 34.1% of the total area of Turkey is good agricultural land. Agricultural land increased from 11.7 million hectares in 1923, which was the beginning of present republic, to 27.5 million hectares in the 1990s. (Sabanci and Ozgüven 1990). According to the land ability classification, 46.6% of land should be used for forestry purposes but the current forest lands are less than 46.6 percent (25.9%) and have been decreasing both in quality and quantity.

3. FOREST POLICY AND LAND USE

The 1956 Forestry Act No. 6831 gives a definition of forest and nature areas. The legal definition of a forest is: "an association of trees and shrubs together with their areas is to be considered as forest". This definition is straightforward and causes no problems. However, the second part of the definition, which deals with nature areas, is more problematic.

Essentially the forest definition (in part 1) also includes the nature areas (in part 2). The problem is that the following categories are not considered forest:

1. reedbeds,
2. the land covered by steppe vegetation,
3. the land covered by all kinds of bushes (*Rubus sp.*, etc.)
4. parks,
5. the land covered by trees and shrubs in ancient cemeteries,
6. the private land covered by groups of trees in agricultural lands,
7. the private land covered by trees, less than 3 hectares, not located around the state forest,
8. bushes composed of *Erica* species and *Myrtus communis*, *Laurus nobilis*, *Olea sp.*, *Arbutus andrachnea*, *Quercus ilex*, *Quercus coccifera* etc. if there is no soil stabilisation problem.

Most of the legislation does not conform to the scientific principles: ownership, land quality, and proximity to state forests should not be the only criteria for defining forests (Gümüs 1990 and 1993).

The legislation does not determine the quality of lands, but it can be determined by the scientific criteria that is defined in the "land ability classification".

In addition to the problems caused by the weak legislature, the public has great difficulties in understanding the various criteria used.

Turkey has a centralised forest policy formulation system with no public participation. In fact, conflicts between interest groups, which result from the lack of public participation in policy-making processes concerning forests or other natural resources, often lead to a situation where land that should be used as forest is used for other purposes instead.

The public pressure on forests and forestry practices in Turkey are a serious concern. Due to high rate of violations (48722 violations per year - The Ministry of Forestry Press 1988), the existing forest land area is shrinking annually. The growing stock is depleted because of forest fires, illegal cuttings, over grazing and illegal occupation of forest lands. These all result in degradation, both in the social and economic functions of the forest. In addition to the crimes that were discovered and prosecuted, there were many undetected crimes, thus the true number is not easily estimated (Gümüs 1992).

In conclusion,

- There is a great risk that much of Turkey could become desert;
- Forest areas and the productivity of agricultural land area are decreasing;
- There are great problems on concerning land use between people and government;
- The problems of ownership are continuing.

4. CONCLUSIONS AND RECOMMENDATIONS

It is clear that Turkey has a great problem with the land use. Forest areas continue to be used for agricultural and pastoral purposes. About 47% of the total land of the country should be used for forestry purposes but the current forest area represents only 26% of the total area of the country.

There is serious misuse of lands caused by:

- population growth,
- incorrect application of the land ability classification;
- non-scientific forest policy;
- lack of participation of the people in land management.

Therefore, most of the land areas that should be used as forest lands are used for other purposes. A forest is described in the law as the areas which should be used for forestry purposes. But this definition does not fit scientific principles. For example, according to the definition, some of the woodlands of less than 3 hectares are not considered as forest.

Having studied these problems, I would recommend the following action as possible solutions:

- Provision should be made for public participation in land management
- An efficient land use system should be implement and demonstrated to the people,
  - Scientific research should be carried out on forest ownership systems to make themcompatible with the traditional ownership approaches of the villagers.
  - The definition of "Forest" in the law should be composed according to the scientific criteria.

ACKNOWLEDGEMENTS

Due to a domestic problem Canturk Gümüs had to return early to Turkey and was unable to deliver his paper. The paper was delivered by John McLoughlin, Coillte (The Irish Forestry Board), Dublin.

REFERENCES

The Ministry of Forestry Press, 1988. Statistics and Evaluations about Forest Protection and Fires, Ankara 58 p.

State Institute of Statistics, 1994. Statistical Yearbook of Turkey 1994, Prime Ministry-Republic of Turkey, Ankara, 748 p.

Gülen, I., Balci, N. and Özdönmez, M. 1981. Land Use Problem and Forests in Turkey. Review of the Faculty of Forestry, University of Istanbul, Series B, Volume 31, Number 1, pp. 15- 24.

Eryilmaz, A. Y. 1985. Forest Policy Lesson Nots. KTÜ Faculty of Forestry Press, Trabzon, 213 p.

Gümüs, C. 1990. The Impacts of Unstable Forest Policy on Flood. Trabzon and Around - June 20, 1990 Flood Disaster Symposium, pp. 37-45.

Gümüs, C. 1992. The Causes for Violations in the Amasya Forest District. Doctorate thesis, Trabzon, 230 p.

Gümüs, C. 1993. Some criticisms on Forest Law - Number 1. First Forestry Council, Ministry of Forestry Press, pp. 93-97.

Istanbullu, T. 1979. Forest Regime in Turkey. Celiker Co. Press, Istanbul, 36 p.

Özdönmez, M., Istanbullu, T. and Akesen, A. 1989. Forest Policy. Tas Co.Press, Istanbul, 301 p.

Sabanci, A. and Özgüven, F. 1990. Management of Agricultural Mechanization. Cukurova University Press, Adana, 120 p.

OBJECTIVES AND REALITY OF OLD-GROWTH FOREST PROTECTION PROGRAMME IN FINNISH STATE FORESTS - EXAMPLES FROM NORTH KARELIA

Heikki Simola
University of Joensuu, Karelian Institute
Finland

Hannu Luotonen
Regional Environmental Centre of North Karelia, Joensuu
Finland

ABSTRACT

In this paper, we describe briefly the land-use history of the North Karelian wilderness forests and the stages of planning (1991-) and implementation (1997?) of old-growth forest protection programme in North Karelia on the lands managed by the Forest and Park Service. The conflicts that have emerged between various administrative and non-governmental parties during the process are discussed.

Key words: Old-growth forest, land-use, needs for protection, conflict, forest resources

1. INTRODUCTION

Intensive forestry has during the past decades fragmented the wilderness forests in eastern Finland. Such forests mainly existed in the upland areas, where human populations have always been small. Although the traditional forest uses, slash-and-burning, tar burning and selective logging, were practised in these areas extensively during the last two or three centuries, they did not break down the forest ecosystem continuity.

Forest biodiversity protection has become an issue of great concern in the recent years. This is true both on the international (Rio agreement; EU policies) and national levels. In Finland it was realized only recently that old-growth forests, especially those representing more productive forest site types, are seriously underrepresented in the existing nature conservation areas (Ruhkanen et al. 1992). The Finnish Red Data Book (Rassi et al. 1992a) lists over 700 species that are endangered in Finland due to forestry management practices.

Birger Solberg and Saija Miina (eds.)
Conflict Management and Public Participation in Land Management
EFI Proceedings No.14, 1997

In the province of North Karelia, some 4,400 ha of state-owned old-growth forests were initially proposed for protection in 1992; in 1994 the programme was complemented by further 1,400 ha of old-growth forests on governmental and 1,000 ha on private lands (Rassi et al. 1992b, 1994). This was done to increase the total area of protected forest land into 1.3 percent of the forest land area of North Karelia.

Owing to hefty local criticism, expressing distrust to the need of nature conservation and concern for the anticipated effects on forestry sector employment, the final implementation of the programme was delayed until late 1996.

The proposals concerning state-owned areas were primarily based on inventories of the Forest and Park Service (FPS). Further inventories, in 1994-95, made by voluntary groups and the Regional Environmental Centre of North Karelia, revealed several valuable areas that were omitted in the initial inventories; at the final stage, the programme was increased by some 360 ha. Thus, the old-growth forest protection programme on state-owned lands in North Karelia will include a total of 58 sites covering 8,680 ha, of which 6,860 ha is classified as forest land (including some 6,200 ha of old-growth). Final governmental enactment for the implementation of the programme is expected in early 1997.

The Ministry of Environment imposed the task to ensure preservation of significant nature values of old-growth forests in North Karelia on the local units of FPS and the Regional Environmental Centre of North Karelia. Despite this agreement, and in obvious conflict with the new forestry practice guidelines of the FPS, loggings were still continued during 1996 in some of the valuable areas, particularly in the northern part of North Karelia. This caused further fragmentation and destruction of the remaining old-growth forest areas.

In this paper, the land-use history of North Karelian wilderness forests and the process of implementing forest biodiversity conservation on the lands managed by the Forest and Park Service are described. The conflicts that have emerged between various administrative and non-governemental parties during the process are also discussed.

2. FOREST AND LAND-USE HISTORY IN NORTH KARELIA

At the first stage of the nation-wide protection programme for old-growth forests, some 170 valuable forest stands on state-owned land were listed in southern Finland (Rassi et al. 1992b). There is a very clear concentration of these sites on a wedge-shaped belt extending westwards from the NE border of North Karelia along the main water divide and provincial border between North Karelia and Kainuu.From the point of view of forest history, this narrow belt remained a marginal area with respect to two major exploitation practices: climatically it is outside the northern risk limit of slash-and-burn cultivation, whereas tar burning was extensively practised only to the north and west of the area, i.e. within the watercourses draining to the Gulf of Bothnia (Figure 1; Solantie 1988). Strikingly, this marginal zone coincides with the present distribution of state-owned lands (Figure 2). This is no coincidence; during the land reparcelling (Fi. *isojako*), conducted here during the 19th century, there were no farmers to claim the ownership for these lands, so they remained the property of the crown.

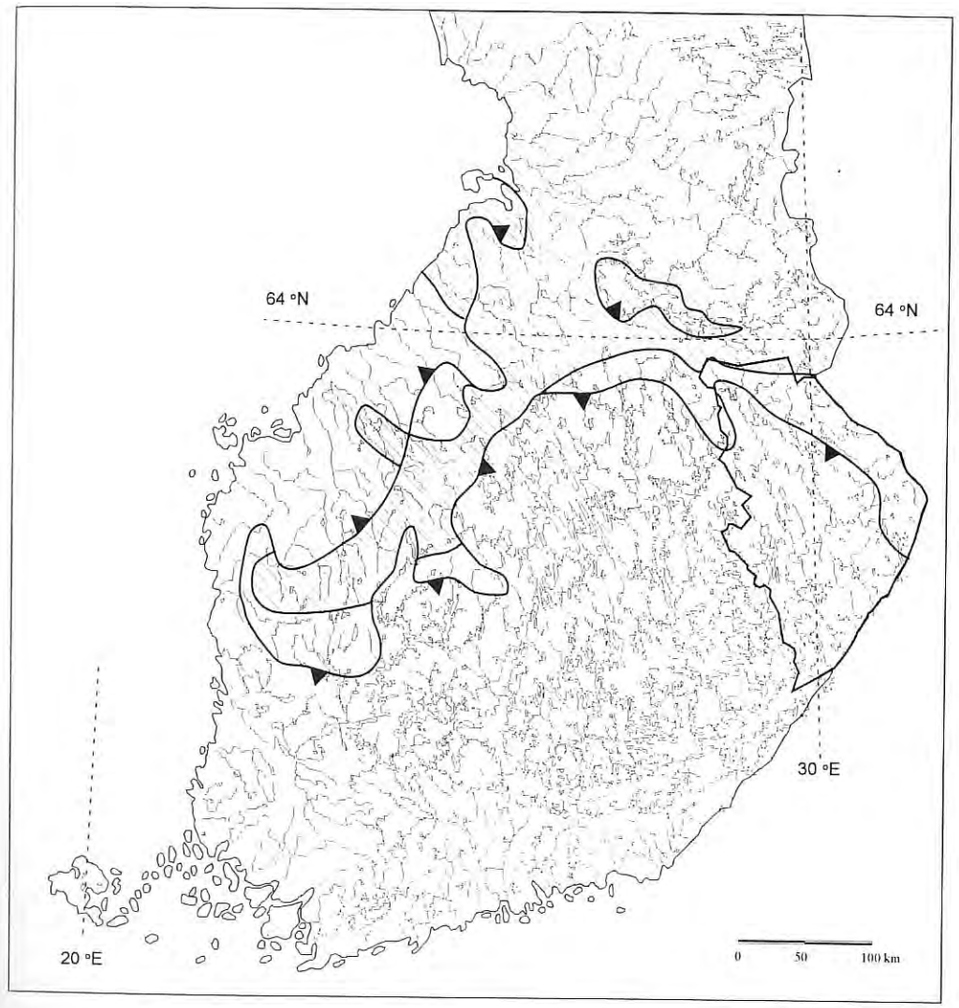

Figure 1. Land-use history explains the distribution of state-owned lands as well as the concentration of remaining old-growth forests in a narrow belt in eastern and northern North-Karelia: (a) is redrawn from Solantie (1988), showing the climatic boundary of 25% risk for rye cultivation (solid line with black triangles pointing towards area of lesser risk) and the area N and W of the major water divide (hatched), where tar-burning developed into major economy during the 19th century (the provincial boundary of North Karelia is also shown).

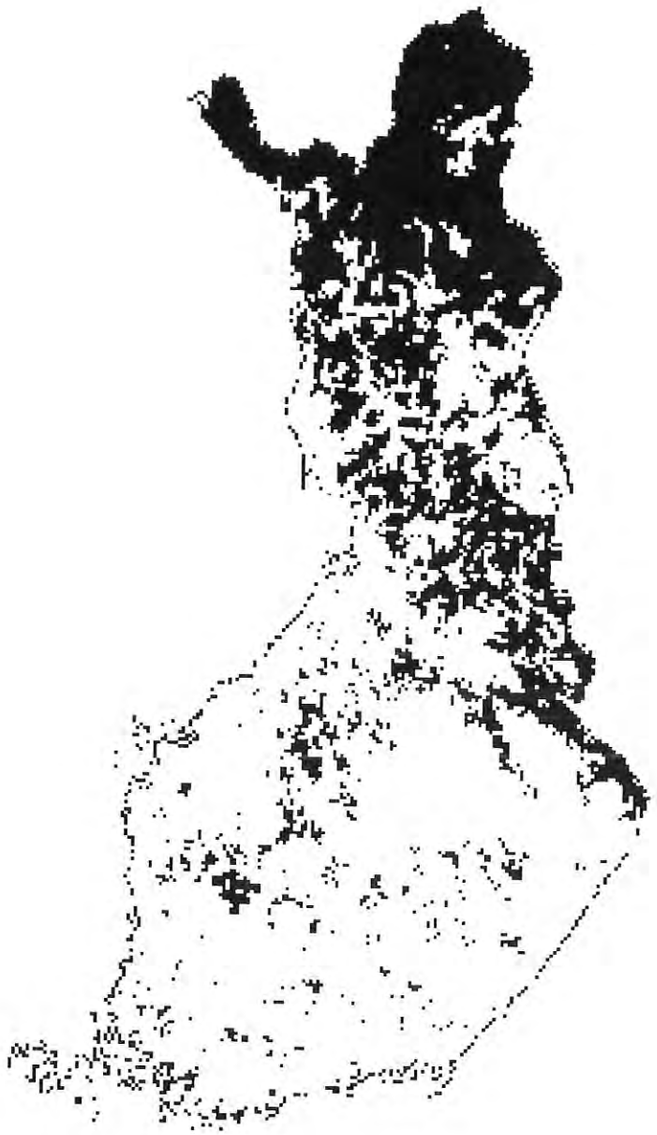

Figure 2. Shows the distribution of lands managed by the Forest and Park Service (dark shading). The wedge-shaped concentration of FPS lands in the north-eastern part of South Finland closely matches the economic shade-zone determined by geographic and climatic factors. Slash-and-burning, selective loggings etc. were practiced even in this marginal area (see the text for details), but it appears that forest ecosystem continuity was nevertheless relatively well retained until the extensive loggings of the post-war period.

Solantie's (1988) climatic boundary for rye cultivation shows the limit of 25% risk for crop failure; north of this boundary, on average every fourth crop failed due to summer frost. This is by no means the northernmost border for rye cultivation - in fact, slash-and-burning was quite extensively practised much further north, up until Kuusamo, near the Arctic Circle. Recent studies of forest fire history (Lehtonen et al. 1996; Lehtonen and Huttunen 1996) have shown that slash-and-burning, as well as forest fires, were indeed fairly common even in the North Karelian upland areas especially during the 18th and 19th centuries. These studies, utilising dendrochronological dating of fire scars in pine trunks, however, demonstrate that slash-and-burning and the consequent forest fires in fact did not break down forest ecosystem continuity: there are typically 3-6 fire scars (maximally 8-9) per trunk, which indicates that most of the large pines survived the fires quite well. Actual slash-and-burning plots were mainly cleared on hilltops and southerly slopes, i.e. areas with least risk of ground frost, so the forest structure even in the heyday of slash-and-burning remained a mosaic, in which also old forest stands were to a significant extent present.

South of Solantie's risk boundary, in the eastern lake district of Finland, slash-and-burn agriculture was very extensively practised still during the latter half of the 19th century. Various techniques were developed for different types of forests (Soininen 1974), and even very poor soils could be cultivated. Pollen-analytical studies (e.g. Grönlund 1995) indicate a steady increase of slash-and-burning in this area from ca. 1200 AD onwards, until a thorough change of the landscape after ca. 1600 becomes evident: decline of spruce, general opening of the landscape and predominance of birch and alder in the forests. Some eye-witness accounts (e.g. Gyldén 1850, von Berg 1859 (1988)) describe this stage quite dramatically. It appears that slash-and-burning quite completely broke down the forest ecosystem continuity for several centuries in the densely populated lowland areas of eastern interior Finland.

Tar burning, on the other hand, became a major export trade in the western part of Finland from the 1600s onwards, peaking around the 1870s, after which it soon declined. Tar burning exploited pine forests in the upper reaches of all watercourses draining to the Gulf of Bothnia, i.e. north and west of the main water divide (Soininen 1974; Figure 1). The river courses in this area were cleaned out to facilitate transport of the tar barrels; subsequently, also timber floating could be widely practised. Because of too high transportation costs, tar-burning was never profitable SE of the water divide, at the northern margins of the Saimaa drainage area. Therefore, the forests remained much longer outside the extensive economical use, even though selective loggings were started even here in the mid 19th century in the vicinity of watercourses suited for timber floating. The wilderness character of the area was still evident by the abundance of dried-out standing *kelo*-trees recorded in the 1938 nationwide forest inventory (Kalliola 1966, Simola 1994).

It was only after WW II, when intensive forestry, involving large clear-cuttings, soil tilling for regeneration, draining of peatlands, general eradication of aspen, etc., was started in the state forests of the North Karelian uplands. This process rapidly decimated the area of old forest stands.

Owing to the particular history of this marginal zone, it is postulated that the remaining old-growth forest stands within the area are exceedingly valuable as true representatives of climax forest continuity in Finland, and as refugia for the associated biota.

3. STAGES IN THE PROTECTION OF OLD-GROWTH FORESTS IN NORTH KARELIA

Prior to the old-growth forest protection programme, a number of nature reserves, with a total area of some 23 600 ha had been established on FPS lands in North Karelia. These include about 12 000 ha of forest land, of which, however, relatively small proportion represents old-growth stands and mesic, herb-rich forest types (Ruhkanen et al., 1992).

The following stages can be listed for the generation and implementation of the old-growth forest protection programme for South Finland, which was a symbolic gesture in the celebration of the 75 years of independence in Finland (1992).

1. Official inventories were carried out by FPS 1991-1992. A proposal for the protection of state-owned old-growth forests in South Finland was published(Rassi et al. 1992b; some additions in 1994).

   Afterwards, it became clear that several valuable areas had been overlooked or omitted, especially in the northern parts of North Karelia. Information on such areas was mediated through several private persons and voluntary organizations.

   In 1994, the North Karelia Regional Environment Centre made an initiative to the Ministry of Environment and FPS to complete inventories in North Karelia; this initiative did not lead to any action.

2a. Voluntary groups continued systematic inventories.

2b. Environment Centre of North Karelia made supplementary inventories in 1995. In these, several tens of further valuable areas were found. In the local media, a lively debate of old-growth forest protection needs in North Karelia continued. Some of the newly found valuable areas were logged in 1995.

3. November, 1995, consultations were held between Ministry of Environment, Forest and Park Service and Environment Centre of North Karelia; the Ministry imposed on the local authorities the task to investigate the areas in cooperation, and to ensure that nature values will be protected in these areas.

4. The Environment Centre of North Karelia and Forest and Park Service agreed on detailed management plans for the jointly inventoried critical areas. In the process it was agreed that most of the valuable core areas of these areas will be saved. Also, areas suitable for logging were determined.

5. In May, 1996, Environment Centre of North Karelia was notified of loggings in two old-growth forest stands in the northern part of the province. While these areas had not been jointly evalued, the loggings, carried out by Forest and Park Service during the winter, appear to have been contrary to the agreed conduct.

6. Joint field inventories were continued in summer 1996; on most sites the management and protection areas could be agreed upon, but on some sites the opinions differed.

7. New loggings, begun on disputed old-growth stands, brought forest protection activists to protest against FPS action in August 1996.

8. In September 1996, a representative of the Ministry of Environment came to visit the disputed areas defined by FPS for logging; in the area of Alimmainen Verkkojärvi, where voluntary groups had stopped the loggings, the remaining stands and also the already logged areas were included in the protection programme.

9. October-November, 1996: the final decisions of the areas to be protectedwere made in Ministry of Environment in cooperation with FPS. Implementation of he programme is still to be enacted by the parliament.

10. Although a principal decision on the total land area to be allotted for the programme had been made by the governement before the inventories were completed, several valuable old-growth sites had to be left out of the programme.

4. DISCUSSION

Decimation and fragmentation of pristine forests is recognized as the main factor causing the loss of biodiversity of the Boreal forest biota (e.g. Krogerus 1943, Kangas 1947, Rassi et al. 1992a, Kotiranta and Niemelä 1993, Siitonen and Martikainen 1994, Virkkala et al. 1994, Hanski and Hammond 1995). The present remaining old-growth stands (Figure 3) and the network of existing protection areas is clearly insufficient to prevent losses of genetic and species diversity in southern Finland (e.g. Angelstam and Andrén 1993). Public participation will be a valuable tool in planning forest management in governement forest areas allotted for commercial forestry. Quite clearly, it is not a sufficient means to ensure the protection of biodiversity in old-growth forests inventoried in North Karelia.

Figure 3. A typical old-growth forest stand in North Karelia. Large aspen-trees *(Populus tremula)* have to a large extent been killed even in these forests by notching or girdling, as a routine measure to fight the rust fungus *Melampsora pinitorqua* (a serious pathogen of young pine, for which aspen is an intermediary host). Discontinuation of the natural dynamics of aspen in the Finnish forests appears to be a major factor leading to eradication of a large number of insects that are specialized to live under the bark and in the decaying wood of aspen (Siitonen and Martikainen 1994). Photo: K.-M. Vuori.

The necessity of application of ecological principles even in the management of commercial forests is nowadays acknowledged. The new guidelines for both governmental and private forestry, as well as the new legislation (Forest Act and Nature Conservation Act; in preparation), urge the sparing of key biotopes, buffer zones and ecological corridors (e.g. FPS 1996). The reality, however, may still be far from ideal (Figure 4).

Figure 4. The sad reality of the application of ecological principles in forest management: this strip of single trees crossing a 1995 clearcut area from a nesting-hole tree of the flying squirrel *(Pteromys volans)* to the margin of uncut forest is actually claimed to be an ecological corridor complying to the new management guidelines. Valtimo, Murtojärvi. Photo: K.-M. Vuori.

Throughout most of southern Finland the situation can be considered critical, owing to the exceedingly small areas of the remaining old-growth forests. The North Karelian belt of old-growth forests on state owned lands is thus of very great value as a potential source area for future recolonization of interior Finland by the forest biota presently eradicated from large areas. For this aim, broad ecological corridors should be created to connect the Green belt of the Russian borderland with central and western Finland, as proposed by the North Karelian District of the Nature Conservation League of Finland (Figure 5).

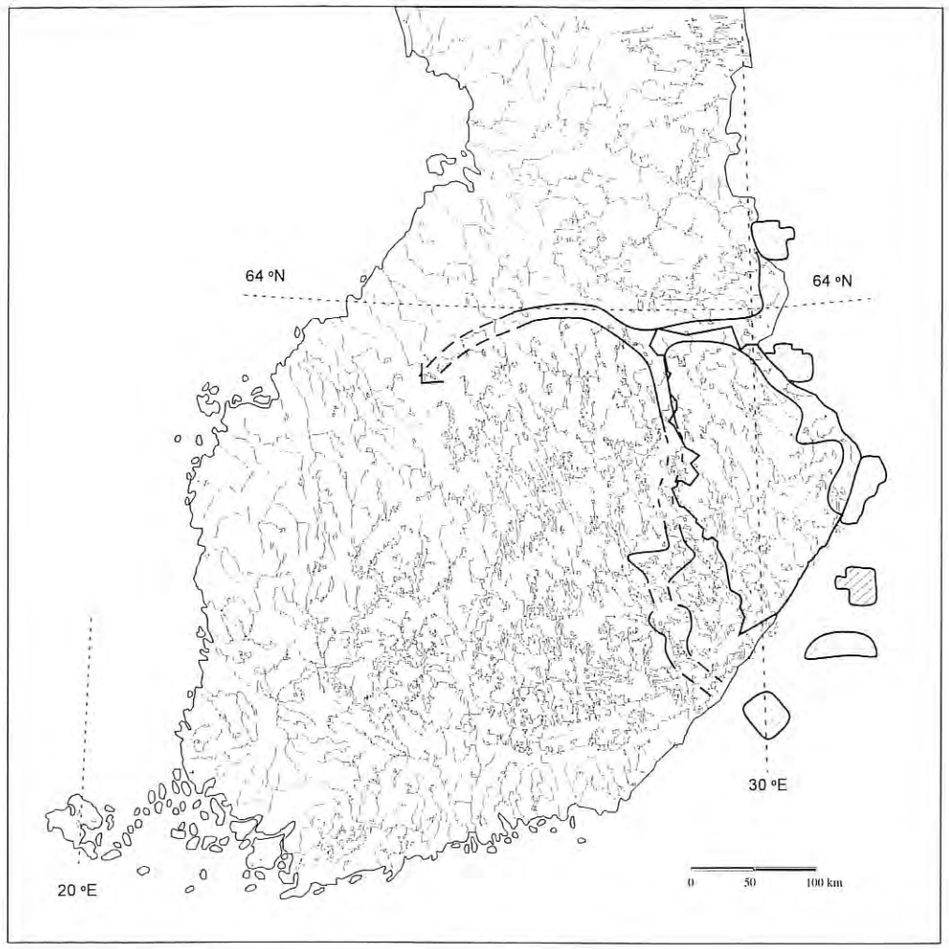

Figure 5. A backbone for future management strategy of North Karelian forests? Broad ecological corridors connecting the Green belt of the Russian borderland via the network of remaining old-growth forest stands with western interior Finland. According to this proposal, multipurpose forestry within these corridors should have a strong emphasis on re-establishing forest ecosystem continuity. The established and proposed nature reserves near the border in Russia are indicated with hatching. (Unpublished PM, April 1996, by the North Karelian District of the Nature Conservation League of Finland, submitted to a working group established for defining a Forest strategy for North Karelia).

The rapid emergence of biodiversity conservation as a central necessary issue in forest management has made a thorough forest management policy change. The change, however, has been difficult, while system inertia tends to keep the old practices going. Several reasons for this can be listed:

- timber production obligations of Forest and Park Service force continued logging; extensive loggings since the 1950s have changed the age structure of government forests so that timber-sized wood is only available in the virgin old growth stands;
- new management practices are adopted at the operations level with a delay;
- alternative work tasks (e.g. habitat restoration, non-motorized silviculture practices, recreation construction works) are as yet not fully explored to create employment for the local timbermen.

As a special and unresolved problem, the case of the East Finnish Forestry Technological School (ISMEK) must be mentioned; this is the only establishment of mid-level professional education in northern North Karelia. To a considerable extent, ISMEK is using the old-growth forests as training areas.

Even though public opinion in general is quite favourable for nature conservation (e.g. Kangas and Niemeläinen 1995), the attitude of the local media in North Karelia appears to be largely against conservation measures. The alleged conflict between employment and nature protection is perpetuated in the media publicity, largely dictated by individual journalists.

Regional and local economies in North Karelia are heavily dependent on forestry. Therefore, there is strong political and economic pressure to continue loggings despite the ecological objections, and even though old-growth timber suffices for only a few years' logging at the planned rate. The loss of manpower needed in modern forestry seriously affects the local villages, where other occupations are scarce; there is not much space to move in focusing forest functions within traditional forestry.

REFERENCES

Angelstam, P. and Andrén, H. 1993. Hur mycket är nog? *Skog & Forskning* 1993: 14-19.

Berg, E. von. 1859 (1988). Kertomus Suomenmaan metsistä. Helsingin yliopisto, Metsänhoitotieteen laitoksen tiedonantoja 63. 88 p.

FPS 1996. Flexible forestry. Forest and Park Service, Brochure, 24 p.

Grönlund, E. 1995. A palaeoecological study of land-use history in East Finland. University of Joensuu, Publications in Sciences 31, 44 p. + App.

Gyldén, C.W. 1850. A map on the condition of Finnish forests. Reprinted in von Berg (1988).

Hanski, I. and Hammond, P. 1995. Biodiversity in boreal forests. *TREE* 10: 5-6.

Heikinheimo, O. 1915. Kaskiviljelyksen vaikutuksista Suomen metsiin. (Zusammenfassung: Der Einfluss der Brandwirtschaft auf die Wälder Finnlands). *Acta Forestalia Fennica* 4: 1-264.

Kalliola, R. 1966. The reduction of the area of forests in natural condition in Finland in the light of some maps based upon national forest inventories. *Annales Botanici Fennici* 3: 442-448.

Kangas, E. 1947. Kovakuoriaisfaunamme erikoisuuksista luonnonsuojelun kannalta. *Suomen Luonto* 1947: 45-55.

Kangas, J. and Niemeläinen, P. 1995. Kansalaismielipide Suomen metsistä sekä metsien hoidosta ja käytöstä. *Metsäntutkimuslaitoksen Tiedonantoja* 561: 1-24.

Kotiranta, H. and Niemelä, T. 1993. Uhanalaiset käävät Suomessa. (Endangered bracket fungi in Finland). *Vesi- ja ympäristöhalinnon julkaisuja*, Sarja B 17. 116 pp.

Krogerus, R. 1943. Suomalaisen aarniometsän hyönteisiä. Havaintoja Pyhähäkin luonnonpuistosta. *Suomen Luonto* 3: 42-45.

Lehtonen, H. and Huttunen, P. 1996. History of forest fires in eastern Finland from the 15th century AD - the possible effects of slash and burn cultivation. *The Holocene* 7(2).

Lehtonen, H., Huttunen, P. and Zetterberg, P. 1996. Influence of man on forest fire frequency in North Karelia, Finland, as evidenced by fire scars on Scoth pines. *Annales Botanici Fennici* 33.

Rassi, P., Kaipiainen, H., Mannerkoski, I. and Ståhls, G. (eds.) 1992a. Uhanalaisten eläinten ja kasvien seurantatoimikunnan mietintö. (Report on the monitoring of threatened animals and plants in Finland). Komiteanmietintö 1991:30. 382 p. Ministry of the Environment. Helsinki.

Rassi, P. et al. (eds.) 1992 b. Vanhojen metsien suojelu valtion mailla Etelä-Suomessa. (Proposal for old-growth forest protection sites on state-owned lands in South Finland). Työryhmän mietintö 70/1992. 59 p. + 169 maps. Ministry of the Environment, Dept. Environment Protection. Helsinki.

Rassi, P. et al. (eds.) 1994. Vanhojen metsien suojeluohjelman täydennys Etelä-Suomessa. (Complementary sites for the old-growth forest protection programme in South Finland) Työryhmän raportti 2/1994. 51 p. Ympäristöministeriö, Alueiden käytön osasto. Helsinki.

Ruhkanen, M., Sahlberg, S. and Kallonen, S. 1992. Suojellut metsät valtionmailla 1991. Metsähallituksen luonnonsuojelujulkaisuja Sarja A 1: 1-90.

Siitonen, J. and Martikainen, P. 1994. Occurrence of rare and threatened insects living on decaying Populus tremula: a comparison between Finnish and Russian Karelia. *Scandinavian Journal of Forest Research* 9: 185-191.

Simola, H. 1994. Land-use history explains the value of the North Karelian biosphere reserve in preserving old-growth forest biodiversity. In: Hokkanen, T. and Ieshko, E. (eds.) Karelian Biosphere Reserve studies. Pp. 15-20.

Soininen, A. 1974. Vanha maataloutemme. (Summary: Old traditional agriculture in Finland). *Historiallisia tutkimuksia* 96, 459 p.

Solantie, R. 1988. Climatic conditions for the cultivation of rye with reference to the history of settlement in Finland. *Fennoscandia Archaeologica* 5: 3-20.

Virkkala, R., Rajasärkkä, A., Väisänen, R., Vickholm, M. and Virolainen, E. 1994. Conservation value of nature reserves: do hole-nesting birds prefer protected forests in southern Finland? *Annales Zoologici Fennici* 31: 173-186.

FROM KARELIANISM TO NATIONAL PARK - 100 YEARS OF TOURISM AND NATURE CONSERVATION AT KOLI

Timo Muhonen
Finnish Forest Research Institute
Finland

KOLI AND FINNISH NATIONAL IDENTITY

The history of tourism and nature conservation in the Koli area has its roots at the end of the last century. As the Pielinen canal came into use in 1879, the number of tourists started to increase. In the beginning the visitors came from the surrounding areas, for example, school children and students had hiking and rowing excursions to the area. The Koli area was also well-known for its excellent berry-picking places. Nationally the area started to gain recognition during the period of Karelianism in 1890s. Karelianism was one feature of a strong national romantic period at the end of the century when also Karelia's significance in the history of Finland was acknowledged. It was the political and spiritual rise during the years of oppression under the Russian rule, that gave boost to Karelianism. In this connection the significance of arts in forming national identity was highlighted. During the period of Karelianism it was popular to collect folk songs and poems among the peasants, and to make cultural trips to Karelia. The trips served as an inspiration for music, visual arts and literature. Some of these trips were made to Koli. The first famous artist who stayed at Koli was Akseli Gallen-Kallela, visiting the area during his honey-moon in summer 1890. After Gallen-Kallela, artists such as Eino Leino, Jean Sibelius, Juhani Aho and his wife Venny Soldan-Brofeldt, Eero Järnfelt, Pekka Halonen and Into Konrad Inha, travelled to Koli.

KOLI AND FINNISH ART

The landscape of Koli had an impact on the works of many artists. Author Juhani Aho's first trip with Venny Soldan-Brofeldt and Eero Järnefelt was significant not only to the visitors themselves but to Koli and the promotion of Koli's landscape. After the trip Aho wrote articles on his experiences to two national papers, and consequently the word about the magnificent landscape of Koli started to spread. Aho was impressed by the duality of the landscape. The view to east was ragged and rocky and the wilderness

Birger Solberg and Saija Miina (eds.)
Conflict Management and Public Participation in Land Management
EFI Proceedings No.14, 1997

looming on the other shore of Pielinen-lake brought him visions of ancient past. On the other hand, the view to west was green and luscious. Aho found the latter view familiar because of his roots were in Savo-area, which resembled the opening scenery from Koli to the west. The duality Aho experienced could be detected in his texts. In his novel 'Panu' (1897) in which he described the fight between Christianity and Paganism, Aho used the view to the east as a symbol of paganism while the scene to the west served as a symbol of Christianity. Aho's wife Venny Soldan-Brofeldt used a different type of expression, and her approach to Karelianism differed from those of other artists. She was a visual artist paying great attention to local people and their folklorist characteristics, while the other artists took a more nationalist and symbolic approach.

It was Aho's and Soldan-Brofeldt's travelling companion Eero Järnefelt on whom Koli scenery left the most powerful mark and which was then conveyed on his paintings. He kept returning to Koli again and again. Järnefelt painted about 50 paintings on Koli-theme of which the best-know is the "Autumn scene of Pielisjärvi" painted in 1899. It portrays a view from Mäkrävaara hill to Ukko-Koli in the autumn.

Jean Sibelius also saw Koli for the first time in summer 1892. He observed it from the other side of the lake in Monola, Lieksa. Sibelius returned to Koli and Karelia 17 years later, in 1909. At that time he was composing his fourth symphony which was proving to be painstaking. It was in 1911 that the symphony was finally completed. Many experts are convinced that Koli and its landscape had served Sibelius as a source of inspiration and creativity which led to the finalisation of the symphony. The impact of Koli landscape can also be heard in the later works of Sibelius.

USE OF FOREST THREATENS THE LANDSCAPE OF KOLI

Despite the great admiration for Koli landscape and its effect on artists, the fact is that the forms of forest use, such as slash-and-burn, pasturing and fellings, started to be easy to see in the landscape. The state of the forests is clearly depicted in the photographs taken by a photographer and author Into Konrad Inha in the 1890s. The forests in the photographs have clear-felled areas, and there is a lot of young, broad-leaved forests. Painter Pekka Halonen's experiences in Koli in 1895 envisage Koli's forests' and nature's future. According to Halonen, one could see too much man's traces there, forests were neglected and the feeling of wilderness had disappeared. He could not find the mystic landscape he had been seeking. Based on his experiences, Halonen wrote as follows: "The atmosphere is the same as if one is forced to listen to an organ-grinder in the middle of an artistic musical performance. The picture is unavoidably spoilt. This is modern robbery of national heritage on the stony slopes of North. We can see that the shores of Pielinen will not give us what we came to look for." Halonen returned to Koli 20 years later at the end of April 1914. This time his experiences were more positive and he found inspiration in nature, thus painting numerous pictures and skectches of Koli in the spring time.

THE STATE "SAVES" THE FORESTS OF KOLI

In addition to Halonen, there was even wider interest in the state of the Koli landscape and forests. The final nudge to the change in the land ownership was given by extensive felling plans at the beginning of the century. Consequently, in order to secure the natural beauty and tourism based on it, the State purchased three estates in Koli in 1907, a total of over 1000 hectares. At the same time the State joined in the Koli tourist business by building the upper cottage and restoring the lower cottage for tourists. In 1920 the State rented the cottages to the Tourist Association of Finland.

The land property in Koli were at first governed by the Forest and Park Service. In 1923 the land was transferred to the management of the Finnish Forest research Institute. When the forests had became state property, the aim in their management had been to take into account the landscape and nature. To promote these aims, the Finnish Forest Research Institute established protected areas on the hill tops and slopes by the Pielinen lake. In addition to changing management regimes, the end of slash-and-burn activities in the early 20th century effected the state of the forests.

EXTENSIVE DEVELOPMENT IN TOURISM BEGINS

From the beginning of the century until the 1970s, life in Koli was relatively harmonious as regards to tourism and nature. Naturally tourism was constantly being developed. New roads were built, and buildings were erected. The development was, however, rather slow and no particular signs of conflict were in sight. It was not until the 1970s that the first signs of unrest emerged. Both the tourism and nature conservationists now acknowledged the significance and value of Koli. The area started to undergo extensive development in tourism. In 1972 a Koli holiday village plan including the hill region and Holiday-Koli area (established in 1969) was presented. The plan included 4000 accomodation places and nearly 700 new jobs. The plan also comprised of a new camping site, congress hotel, rehabilitation centre, health spa, amusement park, extension of the Hotel Koli, as well as a new down-hill skiing slope and lifts in Loma-Koli's Käränkävaara. In order to implement the plan, a development corporation was established comprising of the town of Lieksa, Finnish Tourist Association, Regional Development Fund and local entrepreneurs. The aim was to have the development project accomplished by the year 1980. Although the idea of Koli tourist town was never realised, it was an onset for stronger development of tourism in Koli.

PRESSURES FOR NATURE CONVERSATION INCREASES

At the same time with the tourism plans, the nature conservation in Koli was boosted. In 1973 an Advisory Council of Nature Conservation, and three years later, a Committee of National Parks proposed the establishment of Koli National Park.

As for the plan of Koli Holiday Town, mainly projects regarding "Holiday Koli" were completed. The pressure to build on the hills of Koli accelerated in the 1980s. In 1983 the slopes of Ukko-Koli were extended to Ipatti area where also an anchor-type lift was built. Ipatti's slopes were extended further four years later. Also in 1987 the renovation of Hotel Koli was completed and the Ministry of Environment approved the partial master plan of Koli hill. This included an area for new holiday cottages. When the town of Lieksa approved the plan for the lake shores of Paimenvaara in 1990 which proposed more slopes, hotel and holiday camp, the nature conservation circles woke up. Furthermore, in 1989 nearly 100 000 names were collected in favour for the establishment of Koli National Park.

CONFLICTS IN ESTABLISHMENT OF THE KOLI NATIONAL PARK

It was consequently the Paimenvaara plan for the lake shores that gave the first push to the protection of Koli. As the first action in this, the Ministry of Environment did not verify the plan and started to prepare the establishment of the Koli National Park. According to the Ministry's plans, the land area of the national park would have been about 2500 ha which is twice as much as the area owned by the State in Koli. In the so called extension area of the national park the land owned by private individuals was intended to be acquired by voluntary purchases to the State, and to join that land to the national park later on. The privately owned land areas in the extension area became the first problem in the establishment of the national park. According to the local residents, the State restricted their land-use by restriction of any action in the area, and consequently weakened significantly the practising of agriculture and forestry in the area. The matter was complained upon and inquiries were made to the Parliament. The action taken by the State stirred bitter feelings in the local residents. In addition, the nature conservationists clashed with them. Despite the clashes remaining mainly at the verbal level, fights were not fully avoided.

One further cause for conflicts was the inability of the State and Lieksa town to co-operate with each other in the planning of the national park and Koli area. In practice the Ministry of Environment left the Lieksa town and the local residents outside the planning procedure. The Ministry's line of action may have been a consequence of the culmination of the situation in Koli: a clash between nature conservation, tourism and agriculture and forestry, with the addition of a great pressure and urgency to establish the national park. All parties involved (the state, municipality and the village) each took a stubborn stand and no compromises were made. According to some, the information given by the Ministry of Environment was at times secretive and contradictory. In addition, the decision-making was one-sided and unpredictable: the final decision was simply dictated to the other parties to swallow and digest. The town of Lieksa was criticised for too grand plans for Koli. The plans did not take the value of the environment into account and had only an economic interest. Nor did Lieksa's plans include the potential benefits of the national park. The conflicts could have been better avoided by equally distributed and open information, and by including in the decision-making all parties to be effected by those decisions.

THE MUNICIPALITIES IN THE AREA MAKE THE NEW TOURISM DEVELOPMENT PLAN

When the Koli National Park was finally founded in April 1991, the emotions started to cool down and the worst stage of the conflict was over. Perhaps there was a general feeling of weariness about, and people started to understand that disagreements and clashes were not to develop Koli. The municipalities in the area (Eno, Juuka, Kontiolahti and Lieksa town) as well as North-Karelian Regional Planning Authority answered to the development of Koli by launching the Koli-Ahveninen development project in spring 1990. The project consisted of app. 46000 hectares including the water-ways. The area was bordered in the west by the highway 18, in the east by Pielinen-lake and in the south by Romppala-Ahveninen road. The target of the project was to make a functional development plan for tourism, free-time and other activities, as well as making a plan for its implementation. The plan was realised in two years. The project was started by setting the targets after which four consultancy firms were invited to set forth their suggestions. The last phase was the making of the development plan. As the development plan proceeded, the municipalities involved in the project made their land-use in co-operation by drafting a joint master plan. This gave a foundation for partial master plans and other land-use decisions. The development plan of Koli-Ahveninen tourism was the first plan made jointly by the municipalities of the area and which took Koli and the area surrounding it into full account. The area was divided into sub-areas in which nature's characteristics, cultural heritage or existing activities formed the basis for the planning or development. One part of the plan was Koli National Park and its extension, the development of which should concentrate on presenting the nature in the area. This mean, in practice, building the Koli Nature Centre as well as improving the other services such as constructing hiking routes, cottages for overnight accommodation, fire-places, landing places and guide signs, and renovating the already existing structures.

MASTER PLAN OF THE KOLI NATIONAL PARK COMPRISES THE AIMS OF THE USE AND MANAGEMENT OF THE NATIONAL PARK

The development project of Koli-Ahveninen tourism was the action taken by the local municipalities in the development of the area. Since the plan effected also the state owned areas, it may have been appropriate to include it in the plan. This would have had significance at the latest when the Koli National Park framework was started to be made in August 1992.The master plan for the Koli National Park and other areas to be protected in Koli was completed in December 1993. The plan was designed by a working party set by the Finnish Forest Research Institute, and it had representatives from FFRI, the County Government of North Karelia, Water and Environment District of North-Karelia, Regional Council of North-Karelia, Nature Conservation Union of Finland, University of Joensuu, Eno Municipality, Lieksa Town, Kontiolahti Municipality and Koli Village Committee. The working party gathered information from experts and gave two public hearings at which the local inhabitants had their chance to have an impact on the content of the plan.

On the basis of the work by the working party, the Finnish Forest Research Institute redefined the plan. At the same time, statements were asked from ten different interest groups. The FFRI approved the plan in January 1995, after which it was given to the Ministry of Environment for verification. The Ministry of Environment has declared it will verify the plan simultaneously with the Act on the extension of the Koli National Park. The government bill was passed to the Parliament in May 1996 and it was verified at the beginning of June.

The plan lists extensively the most central factors related to the use and management of the Koli National Park and its extension area. The aims set for the management and use of the planning area have mainly been defined in the Act on Koli National Park, according to which the national park has been established in order to protect North-Karelian hill landscape, old forests and their flora and fauna, and the national landscape of Koli; to maintain the landscape and ecosystems created by slash-and-burn activities; and to promote environmental research, environmental education and other nature related activities. There are regulations regarding the management and use of the area in the Statute on Koli National Park. In addition, the Parliamnet has set preconditions stating that the areas and activities of tourism businesses and skiing slopes are to be secured while the national park is being realized.

MANAGING NATURE

Because the planning area varies a great deal, it is not divided into any clear areas. Therefore, the division into areas has been made according to management and use, and the aim is to define the area further, and to bring out the areas' special characteristics in order to assist the design of future plans and arrangements for the future management and use. A total of six areas were defined: Koli core areas, areas with valuable or vulnerable flora and fauna, areas left to their natural state, landscapes, key areas for the landscape and areas of cultural heritage. Furthermore, there are many sites that are outside these areas. Such are cultural sites of natural historical, historical or pre-historical value.

GUIDANCE

In addition to nature management, the plan includes matters of guidance, information, accommodation, tourism and other business activities - their arrangements in the national park, traffic arrangements, path and skiing route network, other services and research. There is a separate programme on research. The most central practical question has been revolving around the building of a guidance or nature centre. The working party suggested the nature centre to be located at the Ollila farm situated in the neighbourhood of Koli village. Later on the Regional Council of North-Karelia, North-Karelian Environment Centre, North-Karelian Employment District, Finnish Forest

Research Institute's Joensuu Station and Town of Lieksa joined forces for locating the guidance centre in the connection of the Hotel Koli. The preparations and plans for this project were began at the beginning of 1996.

TOURISM

Tourism and accommodation activities have concentrated in the Upper-Koli area. The leases of the hotel ad skiing slopes are valid until 2013. The plan stresses that neither tourism nor other business activities are allowed to hamper the realization of the aims of nature protection, and businesses are not allowed to be located elsewhere than the Upper-Koli. As regards to tourism, a special emphasis is given to the area's suitability for nature camps, etc.

TRAFFIC

Landscape is very much underlined in the connection of traffic arrangements. New public highways are not built, cycling is not allowed in the forest or on paths, boating is allowed on Pielinen lake while landing is allowed only on marked places.

HIKING AND SKIING

Path and skiing track networks are mostly sufficient and in good condition in the present national park area. After the plan is finished, there will also be new paths and fire places in the southern part of the park. Consequently, the path network in the whole area is sufficient excluding some small additions. The most significant development project in the southern part is the renovation of the Lakkala farm and connecting the path network to routes to the west of Herajärvi-lake.

RESEARCH

A programme was made on the area's research significance, ongoing research and research needs. The programme states that as a multi-disciplinary research object the Koli National Park provides good opportunities for research. A plenty of research has been conducted in various disciplines. The most important topic in the near future appears to be the collection of data on Koli and storing it into a natural resource data base. Another central unit of work is the continuation of the research and monitoring of the cultural heritage area, as well as research on endangered species in order to be

able to make a protection and management plan. Sociological area studies are mentioned as a third unit providing information on means of livelihood supported by the ecologically sustainable development.

Finally the plan sets forth questions regarding personnel resources, expenses, co-operation with interest groups, as further reports and special plans.

THE EXTENSION OF THE KOLI NATIONAL PARK

Already prior to the verification of the Act on Koli National Park, the purchases and exchanges of extension areas were started. Most of the extension areas were acquired by the end of 1992. The last significant purchase was made in April 1996 before the government bill on the extension area was given to the Parliament.

The purchases have occasionally caused strong conflicts. According to some land owners, the timber sales are more difficult now, further restrictions have been introduced on hunting and extending farm accommodation services has become more difficult.

The history of the Koli National Park and its extension area has been long and, at times, a painful process. The worst times are maybe over now and there is still faith in the future left. What has been crucial regarding the development of Koli, has been the aim for a uniform opinion on the main lines of the development.

REFERENCES

Act on the extension of the Koli National Park 16.8.1996. No 634. (in Finnish)

Act on the Koli National Park 27.3.1991. No 581. (in Finnish)

General plan for the Koli National Park and additional lands in the Koli area purchased for protection. Proposal of the working group 21.12.1993. Stencil. 25 pages + appendices. (in Finnish)

Lyytikäinen, A. 1991. Nature, landscape and cultural history of Koli. Series of the National board of water and environment, no 308. 82 pages and appendices. (in Finnish)

Oinonen- Edén, E. 1984. The artists and Karelianism at Koli. Stencil. 85 pages + appendices. (in Finnish)

Sulmio, J. 1992. Koli as the conflict of environmental and economical politics. A case study of the collision of the economic politics of Lieksa Town and the environmental politics of the State at the establishment of the Koli National Park. MA thesis. University of Joensuu. Department of Social Sciences. (in Finnish)

Statute on the Koli National Park 12.4.1991. No 674. (in Finnish)

Summary of the development plan for tourism in the Koli-Ahvenainen area 1992. (in Finnish)

Taipale, A. (ed.) 1988. Guide to Koli. Tourist Association of Finland. 104 pages. Mänttä. (in Finnish)

NATURE OF KOLI NATIONAL PARK

Kauko Salo
Finnish Forest Research Institute
Finland

GEOLOGY

Koli National Park is situated mainly in the middle boreal and partly in the southern boreal vegetation zone (Ahti et al. 1968) (Figure 1). The geological origins of the Koli Hills are in the ancient Karelian fold mountains. These were formed over 2,000 million years ago when layers of sand, hundreds of meters thick, petrified into quartz. The quartz withstood weathering better than the surrounding rock types. Stone with wave impressions are about 2,000 million years old. The Ice Age has left its evidence - channels, cracks, sickle and spiral shaped grooves on the surface of the rocks. A line of eskers was formed by the deposition of debris from glacial meltwaters 10,000 years ago. For 1,500 years the eskers were under water, until the water retreated 8,500 years ago, revealing the eskers as islands east of Ukko-Koli. (Figure 2).

FOREST SITE TYPES AND SLASH AND BURN AREAS

In 1907, the Koli experimental area was transferred from private to state ownership, and in 1924 from the Finnish National Board of Forestry to the Finnish Forest Research Institute. Koli National Park was founded in 1991. The area of the National Park is presently about 2,600 hectares.

Koli Hill stands 347 m above sea level and 253 m above Lake Pielinen. This relative difference in altitude is the greatest in southern Finland. Koli is Koli: The main features of the landscape composition are lake scenery with many esker islands in Lake Pielinen; hills with rock outcrops; natural spruce forests with glittering lakes, groves and brooks; birch dominated woodland on former slash and burn areas; dry and dryish Scots pine (*Pinus sylvestris*) forest types, where streams and springs carry nutrients and oxygenated water also to acid areas; hay meadows and peatlands of different site types. Koli has traditional slash and burn areas where the practice continued into the early 20th century: an inventory made in 1935 reveals that over half the land was under deciduous forest.

Birger Solberg and Saija Miina (eds.)
Conflict Management and Public Participation in Land Management
EFI Proceedings No.14, 1997

Figure 1. Location of the Koli National Park (darkened). B = border between southern and middle boreal vegetation zones. (Ahti et al. 1968).

Figure 2. The central part of the park contains the Koli Hills, with the lake landscape of Pielinen opening out to the north and east. Many of the features characteristic of the Koli area were formed during the last Ice Age, for example, the eskers that developed as the glaciers retreated. The most impressive of these eskers is the string of eskers dominating the landscape of Lake Pielinen. Photo: Erkki Oksanen.

According to the last park inventory, the most common forest site types with different development classes of tree stands are Myrtillus Type (MT) and Oxalis-Myrtillus Type (OMT). These Norway spruce (*Picea abies*) forests form 44 % of all forests and peatland site types. Additionally, there are 40 % Scots pine (*Pinus sylvestris*) (*Vaccinium* Type, VT) and birch (*Betula pendula, B. pubescens)* (14 %) dominated forests in the park. Some 12 % consist of spruce mires, pine mires and bogs, small fens, rocks and precipices.

First settlements in the National Park were based on slash and burn agriculture. Slash and burn agriculture and forest grazing continued until the beginning of this century. Nine hay meadows (former dwelling places) are situated in the park and those meadows are cut every summer to prevent invasion by pioneer tree species such as birch species, grey alder (*Alnus incana*), rowan (*Sorbus aucuparia*) and willows (*Salix spp.*).

Slash and burn agriculture in Finland can be divided into two main types: the so-called "huuhta" slash and burn (mainly spruce forest) and deciduous forest slash and burn agriculture. 50-75 % of the Finnish forest area was undergoing slash and burn practices, especially in Central and Eastern Finland between 1700 and 1900. In the Koli National Park almost all forests have been under slash and burn agriculture from 1800 to 1930, except the rocky forests in the hill range.

The latest slash and burn project in the Koli area was carried out in 1939. Since after the discontinuation of slash and burn practices forests have become dominated by conifers, the Finnish Forest Research Institute started to revive slash and burn culture in 1994 to increase forest diversity. The first burnt place was 1 ha of "huuhta" slash and burn area (*Myrtillus* Type). Main tree species were spruces, planted in the area about 60 years ago. The "huuhta" slash and burn area has been cultivated with rye as our ancestors traditionally did. (Figure 3).

Figure 3. "Huuhta" slash and burn area (1 hectare) was burnt in June 1996. Spruces were planted 60 years ago into the area and they were clear-cut in order to dry in the spring of 1995. Some spruces have been left to dry stand upright and they burnt like a candle. Photo: Kauko Salo.

Forest inventories and studies are important in the National Park. The slash and burn areas are examined annually to determine 1) which tree species are regenerating naturally, 2) the structure of plant and macrofungus communities and 3) the succession of plants and macrofungi.

ENDANGERED PLANT SPECIES

Koli's geographical position is favourable for a diversity of vegetation. Southern, eastern and northern species can be found in the area, some of them at the limits of their range.

North Karelia's regional flower, the Karelian rose (*Rosa acicularis*) and *Rosa majalis* are common in the park. The calypso (*Galypso bulbosa*), the vanilla fragranced tropical orchid's relative (Figure 4) and the lady's slipper (*Cypripedium calceolus*), the biggest orchid in the Nordic countries, grow in Norway spruce dominant groves. Both are nationally regarded as endangered plant species. Other endangered plant species to be found in the park are *Epipactis palustris*, *Carex bergrothii* and a moss, *Neckera pennata*. There are additional 10 plant species which are regionally endangered, and tens of rare plant species, some of them in their northernmost growing places in Finland. (Hakalisto 1987, Heikkinen 1976, Lyytikäinen 1991).

Endangered plants and animals are granted protection both directly and through maintenance of their habitats, taking into account the particular requirements of the species.

Figure 4. The Koli National Park is an area where many rare and endangered plants are growing. Many of them are found in groves and fertile fens. An example of endangered plants persisting in Koli is calypso, an orchid (*Calypso bulbosa*). Photo: Erkki Oksanen.

INSECTS, MAMMALS AND BIRDS

The endangered animals living in the communities of old forests, spruce mires and fens are invertebrates. *Bulgarica cana*, the gastropod, is classified as particularly endangered, since it can be found in Finland only in the Koli National Park. In Koli Hills they can be found only in a limited area on the eastern slopes and below unused ski slopes of Ipatti. *Bulgarica cana* appears in the forest litter and rises to feed exclusively on the trunks of old aspens (*Populus tremula*). For this reason, old aspens must be preserved in the area and the managers of the park must make sure that there are young and middle age aspens growing in the habitat. (Figure 5).

Figure 5. Extremely endangered invertebrate species in the Koli National Park is *Bulcarica nana*, which is only known in Finland from Koli. It is living in the forest litter and rises to feed on the trunks of old aspens. Photo: Erkki Oksanen.

Koli's other endangered invertebrates are the Finnish wood fly (*Solva interrupta*), and the following species of beetles (*Peltis grossa*), mosquitoes (*Pachyneura fasciata*), spiders (*Peponogranium praeceps*), stoneflies (*Protonemura intricata*) and butterflies (*Pseudaricia nicias*) (Lyytikäinen 1991).

Big mammals, bears (*Ursus arctos*) and wolves (*Canis lupus*) are occasionally wandering in the National Park. Lynxes (*Felix lynx*) and foxes (*Vulpes vulpes*) are quite common. Three populations of elks (*Alces alces*), many hares (*Lepus timidus*) and many species of little mammals; moles, shrews and lemmings are living in the park.

Due to the large variety of different biotopes, the density of birds in the Koli region is high, about 500 bird pairs/km^2 in reality (Latja 1990).

Inventory of the game animal stock began in the spring of 1996 in the park. The fowls, capercaillie (*Tetrao urogallus*), black grouse (*Lyrurus tetrix*) and hazel grouse (*Tetrastes bonasia*) are common, and there are many species of berries (cowberry, bilberry, cloudberry, crowberry, cranberry, rowan, juniper) which are important food for fowls. Willow grouse (*Lagopus lagopus*), living mostly on the fells of Lapland, has been seen in the park and on the islands of lake Pielinen.

REFERENCES

Ahti, T., Hämet-Ahti, L. and Jalas, J. 1968. Vegetation zones and their sections in northwestern Europe. *Ann. Bot. Fennici* 5:169-211.

Hakalisto, S. 1987. Pohjois-Karjalan uhanalaiset putkilokasvit. Joensuun yliopisto. Matemaattis-luonnontieteellisen tiedekunnan raporttisarja 18:1-136. Joensuu.

Heikkinen, P. 1976. Kolin kansallispuisto. Pohjois-Karjalaan ehdotettujen kansallispuistojen yleissuunnitelma. Pohjois-Karjalan seutukaavaliitto A 25. 157 p.

Latja, A. 1990. Kolin kylän osayleiskaava-alueen linnusto. Manuscript. 11 p. Pohjois-Karjalan lääninhallitus, ympäristönsuojelutoimisto. Joensuu.

Lyytikäinen, A. 1991. Kolin luonto, maisema ja kulttuurihistoria. Kolin luonnonsuojelututkimukset. Vesi- ja ympäristöhallituksen monistesarja. Joensuu. 308:1-110.

LAKE STATES FORESTRY ALLIANCE, INC.

Wendy Hinrichs Sanders
Lake States Forestry Alliance, Inc.
USA

ABSTRACT

The Lake States Forestry Alliance, Inc. is a public-private non-profit forum, chartered by the governors of each state in 1987, to foster and facilitate cooperative efforts that enhance management and sustainable use of public and private forest lands in the Lake States of Michigan, Minnesota and Wisconsin. The group believes that through cooperation the three states can achieve benefits for their citizens greater than if each state worked alone. The Alliance promotes involvement of all those concerned with the region's forests in forest policy and programs. The Alliance is a partnership with a 21 -member Board of Trustees, including the following representations: US Forest Service, Timber Industry, Academicians, State Foresters, Tourism Industry, Private Landowners, Governor Appointees, Conservation Groups and Recreational Groups.

Key words: Cooperation, forest management, sustainable use, the Lake States

PURPOSES

The Alliance purposes are to:

1. Work cooperatively with public and private sectors on forest policy issues to enhance and facilitate the conservation and management of the Lake States forests.
2. Improve and diversify the region's economy through use of its forest resources while enhancing the environmental, amenity and recreation values which make the region a desirable place in which to live and visit.
3. Build public support for and organizational cooperation on long-term forestry objectives encompassing economic development, environmental quality and sustainability of the forest ecosystems for their many values.

Birger Solberg and Saija Miina (eds.)
Conflict Management and Public Participation in Land Management
EFI Proceedings No.14, 1997

4. Identify opportunities to promote cooperation and coordination of programs to assure sustainable supplies of all forest goods and services, and to satisfy the needs of present and future generations.
5. Create a nationally and internationally reconized image of the Lake States forest uses and values.

FOCAL ISSUES

The Alliance Board of Trustees approved these focal issues in 1995:

A) Promote cooperation and collaboration on current and emerging forest resource policy issues in the Lake States which includes aggressive outreach for stakeholder's input on socially acceptable, economically viable and ecologically sound alternatives.
B) Recognize the interdependent roles of federal, state, county and private lands in the stewardship of the Lake States forests.
C) Position the Lake States forests to respond to increasing demand for a full complement of forest resources.
D) Encourage the expanded flow of forest goods and services while maintaining sustainable and healthy forests, addressing the following components: Define sustainability; Define forest "health," describing indicators; Consider both biological and economic factors.
E) Lead information management and dissemination with regard to the following conceptual areas: Lead a continuous flow of information on forest resources; Focus upon the Lake States Forestry Alliance's Forest Resources Assessment; Monitor and evaluate forest health; Check policy and make recommendations; Build the image of the Alliance.
F) Secure a solid, diverse base of funding for the Alliance.

REGIONAL FOREST ASSESSMENT

The Alliance completed a five-year study in December, 1995 of the Lake States Regional Forest Resources Assessment, a collection of nearly 25 individual technical papers and an analysis of the trends and opportunities related to social and economic conditions of the forests. The major findings indicated the following:

- Lake States forests are generally in good health;
- Lake States forests are in a major phase of accumulation in area, volume and tree size;
- Demands for outputs from the Lake States forests are likely to be substantially increased due to changes in resource supplies in other regions of North America.
- Lake States forest are benefiting from both modern forest management practices and sustainable recreation, tourism and wood products utilization.

- Communities where both tourism and forest products companies are well-developed generally have higher average earnings, more diverse employment opportunities and greater economic stability than areas dominated by one or the other industry.

The next step for the Alliance is to take the results to the public and to members of the forestry field to generate discussion around opportunities.

The Alliance has also facilitated a Timber'n Tourism public/private partnership to promote international travel to the Lake States forests and to educate both domestic and international travellers about sustainable forest management, productivity and outcome.

FUTURE DIRECTION

The future direction of the Alliance will center around education about our forests, promoting sustainable development for sustainable communities and dissemination of positive information about sustainable forest management efforts and outcomes.

EXPERIENCES AND OVERVIEWS

B) INTERNATIONAL COMPARISONS

ENVIRONMENTAL FOREST CONFLICTS FROM AN INTERNATIONAL COMPARATIVE POINT OF VIEW

Eeva Hellström
European Forest Institute
Finland

ABSTRACT

Comparative analysis has weak traditions within forestry research, and particularly in conflict research. Yet, the recent internationalization of the environmental forestry debate and forest policy introduces a growing need to use international frameworks and comparative strategies within conflict and policy research. This paper presents some preliminary findings of an ongoing six-country comparison of environmental forest conflicts in 1984-95. Variation in such conflicts in the USA (Pacific Northwest region and Minnesota), West-Germany, France, Sweden, Finland and Norway is described in relation to changes in value communication, policy and decision-making processes, policy goals and means, policy implementation, markets and forest resources. Particular emphasis is placed upon the inevitability, potential positive impacts, and variation of the conflicts, the understanding of which is essential for successful conflict management.

Keywords: Forestry, environmental conflict, comparative research

1. INTRODUCTION

Environmental forest conflicts are today often viewed as a major source of pressure for revisions of forest policy and forest management both nationally and internationally. It is, therefore, no wonder that individual conflicts and the conflicts of single countries have been described or analyzed all around the world (e.g. Lehtinen 1991, Löf 1993, Vail 1993, Yaffee 1994). However, conflicts in several countries have been presented simultaneously only in a few reports. Even then, they have rarely been compared by using a common framework (e.g. Banuri and Apffel Marglin 1993, Hellström and Reunala 1995), or specified comparative methodology. Indeed, comparative analysis has weak traditions in forestry research compared to such fields as social and political sciences, where comparative methodologies are frequently applied and developed. Yet,

Birger Solberg and Saija Miina (eds.)
Conflict Management and Public Participation in Land Management
EFI Proceedings No.14, 1997

the internationalization of the environmental forest debate and forest policy introduces a growing need to apply international frameworks and comparative strategies also within research into forest conflicts and forest policy (Hellström 1995a).

In a rare and early example of international comparative conflict research (Reunala and Heikinheimo 1987, reviewed in Hellström and Reunala 1995), forest conflicts in 1950-83 in six countries (USA, Germany, France, Sweden, Finland and Norway) were analyzed. The conflicts of this era were found to originate from three simultaneous developments related to economic growth. First, the striving for economic growth led to growing efficiency demands in forest management. Secondly, an efficient economy raised the standard of living, which increased recreational pressure upon forests. Thirdly, economic growth caused deterioration of the environment and fear for the exhaustion of natural resources, which was reflected in the development of the environmental movement.

Although shedding light on the conflicts of the past era, these results do not sufficiently explain the complex conflicts that most countries are facing today. Therefore, in 1994, the European Forest Institute initiated follow-up research for the study mentioned above. In addition to describing the environmental forest conflicts between 1984-95 in the same six countries, the research investigates the role of the conflicts in the transformation of forest policy and the use of forest resources. A broad definition is adopted for conflict. Accordingly, environmental struggles related to forestry may include a wide spectrum of differences, disagreements, disputes, campaigns, litigation, and "fights of war" (Keltner 1990).

This paper first presents the comparative setting and analytic frame of the research (chapter 2). Secondly, some early findings of environmental forest conflicts are presented (chapter 3). These findings are preliminary, and remain open to changes when later analyses with systematic methods of comparison are made. Therefore, instead of aiming at synthesis, this paper illustrates the variation related to the conflicts. As will be discussed in the end of this paper (chapter 4), understanding this variation is essential for successful conflict management.

2. AN INTERNATIONAL COMPARATIVE RESEARCH PROCESS

According to Ragin (1994), a social research process is characterized by a constant interplay of ideas and evidence. This interplay (Figure 1) is illustrated in this chapter, in order for the reader to understand what kind of role the preliminary findings to be presented in the following chapter have within the ongoing larger research project.

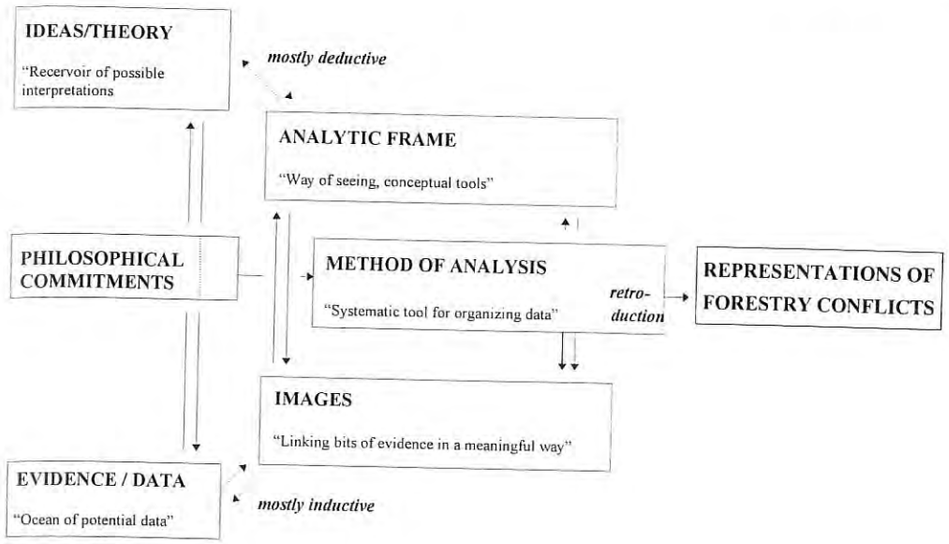

Figure 1. The research process as an interaction of ideas and evidence (modified from Ragin 1994).

Philosophical commitments made in the beginning of the research process are the basis for the selection of theory, data as well as method of analysis. Guiding principles for this research include a holistic view of natural resources (Lee et al. 1990), and hermeneutic interpretation (Hahtola 1990). Ideas represent a "reservoir of theoretical ideas" that may be used to interpret the phenomenon to be examined. Guided by a holistic approach, one of the first tasks within this research was to prepare an initial interdisciplinary theoretical review (unpublished) from conflict-related elements from sociology, political science and economics.

Analytic frames are conceptual tools which "constitute ways of seeing" (Ragin 1994). Analytic frames are constructed through interaction of theory and evidence (Figure 1). In fact, the construction of the analytic frame for this research (Figure 2) was guided by two simultaneous processes: the preparation of the initial theoretical review mentioned above, and a desk study (Hellström 1996) describing recent conflict, policy and resource related developments in the six case study countries. The analytic frame was based on the notion that rivalry structural and processual explanations have been presented for natural resource conflicts (e.g Wondelleck 1988), and that there is need to integrate both types of explanations (Hellström 1995b). Another important notion was that there is constant interaction between conflicts and the various structures and processes. Conflicts are not only nurtured by imbalances or biases in these structures and processes, but often tend to recreate balance between them. This may occur directly, or through images created, for example, by various campaigns and the media. The analytic frame is applicable at organizational, local, national, as well as international levels.

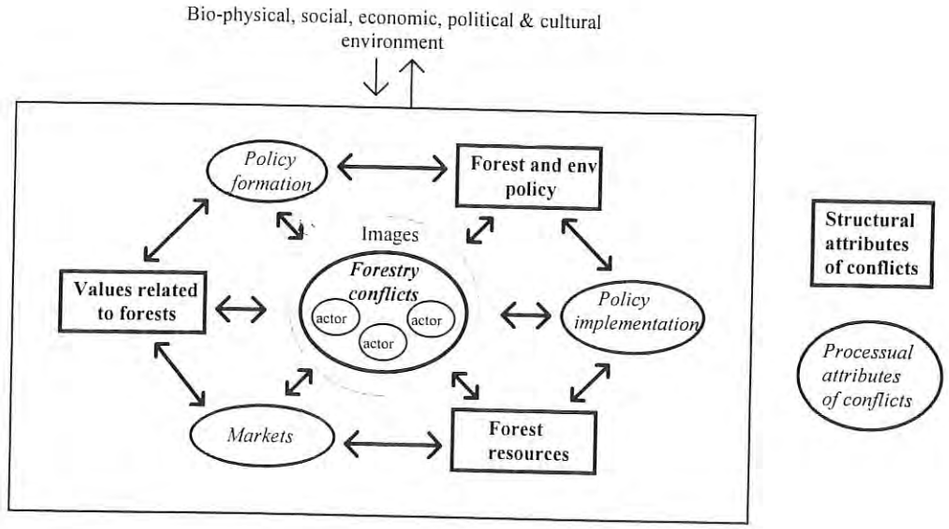

Figure 2. Analytic frame: Structural and processual attributes of forest conflicts in the interplay of values, policies and resources.

Evidence and data (Figure 1) illustrates the whole range of potential data (e.g. documentation, archives, records, interviews, observations, physical objects), from which ideas and analytic frames direct the researcher's attention to specific types of evidence (Ragin 1994). For the research, a total of 210 specialists representing interest groups, researchers and the media in the USA (Pacific Northwest region and Minnesota), West-Germany, France, Sweden, Finland and Norway were interviewed. The focused interviews, as well as the collection of supportive written material, were guided by themes derived from the analytic frame.

Images are the product of the effort to bring coherence to the data by relating it back to the ideas and frames that initially motivated its collection (Ragin 1994). The evidence collected was organized separately for each country, under the themes derived from the analytic frame. The images that were derived this way are described in six individual country reports, to be published during 1996-97. In fact, the preliminary findings to be presented in this paper have been derived from these early images.

The analytic frames, as well as the images, are flexible and may change when analyses with systematic techniques of comparison are finally made. The Qualitative Comparative Analysis (Ragin 1987) will be applied as the method of analysis. This method can be used to holistically address significant variation among a large number of cases, and it is also applicable for hermeneutic interpretation (Hellström 1995a). The dialogue of ideas and evidence, conducted through systematic methods of analysis, culminates in final representations of environmental forest conflicts, to be presented in the final comparative research report.

In the following chapter, the analytic frame is illustrated with the help of images derived from the interview material and the first country reports. Instead of aiming at synthesis, the images are used to illustrate variation in the conflicts. The examples presented do not cover all countries equally, because some countries have, at present, been analyzed further than others

3. IMAGES OF CONFLICTS IN RELATION TO VALUES, POLICIES, MARKETS AND FOREST RESOURCES

3.1 Value communication

Although it is essential to be aware of the diversity of forest values, a major concern in conflict research is how values are communicated. Value communication makes the conflicts "visible" so that they become perceived as social problems needing resolution. Value communication is not only perceptible in verbal interaction (e.g. rhetorics of various communication systems, see Koch and Kennedy 1991) but also in behaviour (e.g. decision-making and cooperation).

Keltner (1990) refers to the goals of including, excluding or eliminating each other as one means of identifying conflict types. An attitude change from excluding to including each other has taken place in many organizations within the forest sector, especially during the early 1990s. Environmental NGOs (non-governmental organizations) have become integrated to many policy and planning processes, public participation has been initiated (e.g. Finnish Forest Service) or strengthened (USDA Forest Service), environmental NGOs have educated foresters in mapping nature values (e.g. Steget Före in Sweden) and also participated in such mapping (e.g. Siste Sjanse in Norway), agreements of improved communication and relations have been signed (e.g. DERF and FNE in France), not to forget the numerous other cooperative initiatives in the case study countries. Tolerance of differing views has also grown within the forestry profession, and organizations promoting close-to-nature forestry (e.g. Arbeitsgemeinschaft Naturgemässe Waldwirtschaft, Pro Silva) have strengthened.

Some organizations have also realized that conflicts are inevitable, and that they should be faced by recognizing value diversity, instead of aiming at value uniformity. Dialectic processes aiming at a better understanding of forest values have been initiated as a conflict management strategy particularly in the early 1990s. For example, the Forestry Ethics project of the Swedish Forestry Association aims at improving the forest sector's ability to participate in value discussions by first becoming aware of their own values. The German NGO Schutzgemeinschaft Deutsher Wald has initiated the Green Round Table as a discussion forum for forestry and environmental interests. The Finnish Forestry Association's Forest Academy of Decision-Makers aims at initiating open discussion about forestry in Finland among decision-makers over sectoral boarders. In Minnesota, an NGO called the Minnesota Environmental Initiative has arranged roundtables for discussions on actual forestry issues in the state.

The 7th American Forestry Congress in 1996 also aimed at bringing "many voices around a common table". These processes should not be confused with information dissemination campaigns that aim at value or attitude changes. Not specifically aiming at policy or management implications either, they should also be separated from public participation processes in decicion-making.

On the other side of the coin, although many of the interviewees were anxious about these developments, some on both sides opposed all cooperation. Although the dialectic processes described above are often supported by the majority, typical voices of criticism include "seeking legitimization" and "giving up on the fight". In addition, within the forestry sector, some groups have organized for counter-attacks against environmentalism (e.g. the Wise Use movement in the USA, and the Heidelberg society in Finland).

The media is an important channel of value communication. It has been doubted that a high level of media attention of environmental forest conflicts would not be possible if the agenda setting was not supported by an environmentally conscious public, or that such public attention is strongly related to the economic and cultural role of forestry. A third often-heard argument is that the media are conflict-oriented and seek contradictions in order to attract the public. Indeed, as on-site protests have largely been lacking in Germany, the environmental forestry debate has not raised public attention at the national level, despite the public's general sensitivity to environmental issues. In addition, the level of media attention of the conflicts has been clearly higher in Finland where more on-site protests have occurred than in Sweden where they have been few, even though forestry has considerable cultural as well as economic importance in both countries. In fact, the most enduring national-level media attention of the conflicts has existed in the Pacific Northwest and in Finland, where the conflicts have involved plenty of on-site actions by the environmentalists. The few conflicts that have raised national-level media attention in France, Sweden and Norway have also mainly involved on-site actions (e.g. Njakafjäll in Sweden, Skotjernfell in Norway, and the Forest of Fontainebleau in France).

The media attention of the conflicts and other campaigning affects the values and attitudes of the public through images. Often, it is this impression of values rather than the factual ones that impact political and economic decision-making. Although representatives of both the forest sector and environmental NGOs have mostly welcomed the new type of direct dialogue, many are at the same time frustrated about the images presented in the media not corresponding to the views that are expressed in private dialogues. In addition, although not questioning a general increase of environmental awareness, it was a common fear among interviewees representing the forest sector that the media attention of the conflicts may have led to the over-estimation of environmental interests both in the political agenda and in the markets.

3.2 Policy and decision-making processes

In some countries, political parties may be important actors in environmental forest conflicts. For example, in the USA, Bill Clinton's concern about the enduring conflicts in the Pacific Northwest was used to support his election campaign, and finally resulted in a conflict resolution effort through the President's Forest Plan (Clinton and Gore 1993). However, frustrated by the federal agencies' failure to provide for the commercial timber that was promised under the plan, the Congress enacted the so-called salvage logging rider in connection to a budget-recision bill in 1995. In addition to aiming at the salvage trees from unhealthy forests, the rider released some disputed timber sale contracts that had been held up during the conflict. As the rider was enacted by the new republican Congress, it has also been viewed as an implication of changes in political power.

On the other hand, in many European countries, the increased support for the Green Parties has increased the weight of environmental issues within parties throughout the political system. This may have reduced political conflict potential in some cases. However, the extent in which environmental interests may participate in policy formulation prior to parliamentary processes may also impact the intensity of political conflicts related to forestry. Even if the content of forest policy has not been a major issue of political debate, changes in political power may have affected the frequency of change. For example, in Sweden forest policy revisions were more frequent in the 1980s which was a decade of frequent changes in the general political setting of the country. In France, on the other hand, a directory of forestry existed only during the early Mitterrand regime, and was abolished when the right wing won the elections in 1986.

Significant conflicts may also exist between the forestry and environmental administrations. This was especially pointed out by interviewees in France and Germany, some of whom even considered these conflicts more severe than the factual ones. In the Scandinavian countries and Minnesota, such conflicts were less apparent. In Finland, for example, despite some "natural struggle of competence", the Ministry for the Environment and the Ministry of Agriculture and Forestry published a joint Environmental Program for Forestry in 1994.

The role of the media as a political force and "conflict partner" is related to the types of interaction among the various other conflict partners. When little direct dialogue among interest groups exists, they may attempt to "use" the media for transmitting messages to each another. However, as the media do not copy messages word for word, but present interpretations, they are easily blamed for deliberate "transmission errors" and for being, thus, responsible for the aggravation of the conflicts. Such situations were typical especially in the 1960s and 1970s but lately, along with improved dialogue between organizations, the role of the media is increasingly understood as transmitting interpretations and images of the conflicts or other issues of news worth to the public at large. Although the media are today still often viewed as conflict seeking, they are seldom blamed for the conflicts.

The media attention of the activities of environmental NGOs, as well as their growing support and resource bases, have facilitated their integration into the political

culture. Subsequently, representatives of environmental organizations have in some countries (e.g. Finland, Sweden, Minnesota) begun to be regularly called to participate in official policy formulation work. In other cases (e.g. Germany), even though environmental groups have usually been reserved the right to be heard, they may not be able to participate in the formulation process itself. Instead, the German environmental movement, for example, has increased its influence through increased parliamentary representation. However, not all interest groups wish to participate in official policy processes, but may even have more influence as unofficial pressure groups.

An interesting example of an open policy process is found in Minnesota where a major environmental concern has been the rapid expansion of the pulp and paper industry. As a response to a petition, a Generic Environmental Impact Statement was commissioned by the Environmental Quality Board in 1989. It was prepared by a consulting firm in cooperation with a citizen advisory committee, and was approved in 1994 when an Implementation Strategy Roundtable joining all relevant interests was set up to implement its recommendations. New state legislation was called for and enacted. To implement the principles of the new Sustainable Forest Resources Act (1995), a Forest Resources Council joining all relevant interests and a Forest Resources Partnership were established (Kilgore et al. 1994). During this open but energy-consuming policy revision process trust has been built between the participants and conflicts have remained mild. Yet, the length of the process, and the lack of direct regulation and implementation so far, have brought some frustration among environmentalists, inducing conflict potential in the future, if not sufficiently addressed.

Participation has not only been introduced to policy-making processes but also to forest management planning. Public participation has been required from the USDA Forest Service by law already since the 1970s, whereas the Finnish Forest Service has initiated such processes more recently, as a voluntary conflict prevention strategy. In most countries, some form of public participation has also guided the management of public forests near conurbations.

Open dialogues to support decision-making within private forestry have been initiated, for example, in relation to community forestry experiments in the USA. There are a few promising examples (e.g. the Applegate Partnership, see KenCairn 1995), but they tend to increase tension between local and national environmental interests, as the latter are concerned about the "disempowerment of the urban environmental interests" in forestry. It seems that a basic requirement for the success of such approaches is that the conflicting interests are geographically based in the same area, or that ways are found to incorporate non-local interests in the local processes. In Finland, the new Forestry Act of 1997 includes an interesting effort to introduce participation in private forestry within a regional planning setting.

Perhaps the most important development in the conflicts since the 1960s and 1970s has been the internationalization of the debate, which has introduced new actors in the conflicts of all countries (e.g. new environmental groups, inter-governmental bodies, foreign industries and customers). The internationalization of the environmental movement, has occurred in different ways in different countries. For example, national

organizations may have focused their attention to international issues (e.g. Robin Wood in Germany), international organizations may have expanded their network of national offices (e.g. Greenpeace in Finland), or launched forest campaigns as new areas of activity (e.g. WWF's involvement in the forest certification issue in all countries), and networks have been formed by a variety of national organizations (e.g. Taiga Rescue Network). There is also great variation in the degree at which international commitments and commission reports (e.g. Brundtland Commission in 1987, UNCED in 1992, Ministerial Conference on the Protection of Forests in Europe in 1993) have been used as arguments within national forestry debates. Most frequently they have been used within the forest policy debates in Finland and Norway, who have themselves been strongly involved in international processes.

3.3 Policy goals and means

When a particular policy has been proven successful in the prevailing conditions of society, the policy may often become "internalized" in the society, so that policy change is only actualized when the symptoms caused by the incompatibility of the policy and changing circumstances grow intolerable (Hellström 1994). The issues under debate in forest conflicts are often characterized by this incompatibility and, thus, initiate policy change. The emergence of conflicts often also shortens the delay between social change and policy change.

Policies aiming at the protection of nature values in forests have adopted two main strategies: forests are set aside from wood production, and limits for environmental impacts of forest management are defined. There is significant variation in the application of these strategies in different countries, and whether they are perceived as alternative or complementary. For example, in Germany, where forests may receive different levels of protection through different legislations, the debate over protected areas has not been as polarized as in Finland, Sweden and Norway, where forests have traditionally been perceived as either protected or managed.

The German federal forestry law, which is a frame law for state legislation, has already given principally equal weight to the wood production, protection and recreation functions of forests since 1975. The French forestry legislation is also based on similar principles. As most environmental demands upon forestry are not in contrast with these goals, little pressure for revision of forestry legislation has existed because of the conflicts. This low pressure for factual change may also have reduced pressures to develop the policy formation processes.

In Finland and Sweden, forest policy was in the 1980s still based on primarily economic utilization goals both in the public and private forests. In Sweden, increased environmental pressure together with a need to deregulate forestry from an economic point of view led to the enactment of a new forest law in 1994, in which the wood production and environmental goals were given equal weight. In Finland, new forest legislation is also to be enacted in 1997, aiming at economically, ecologically and socially sustainable forestry.

Owing to the complexity of the present-day policies that control the protection and management of forests, contradicting policy goals and means are frequently met. In France, there has been a significant imbalance between the goals of the forestry legislation and the wood production oriented financial support system of forestry (National Forestry Fund) which has been the major forest policy instrument since the 1940s. Environmentalists, for example, view this financial support system as obstructing the implementation of the forestry legislation.

The expansion of environmental legislation has also increased potential for integral policy contradictions and the need for legislative coordination. The lack of such coordination is evident in the Pacific Northwest where the environmental forestry debate has been greatly affected by the dispersity of national environmental legislation, whereas in Finland, in order to avoid integral policy contradictions, a simultaneous, coordinated and comprehensive revision of the nature protection and forestry legislations is ongoing.

Although this section has focused on legislation, there have been numerous attempts to manage the conflicts by launching various environmental and ecological programs. In addition to public policy programs, most forestry organizations have launched programs of their own. In some countries (e.g. Germany, Sweden, Finland and Norway), financial subsidies have also been re-allocated, to some extent, in favour of ecologically responsible forest management.

3.4 Policy implementation

Changes in forest policy do not usually have dramatic over-night effects on the use of forest resources, because new regulations often only confirm developments that have already occurred in the implementation of previous forest policies. As indicated in the examples below, conflicts may also either promote or obstruct the implementation of a policy (positive and negative implementation effects of conflicts).

In Finland, intensive conflicts existed in the early and mid 1980s between forest owners and the forestry administration. The forestry boards filed several law suits against forest owners who neglected the strongly wood-production oriented regulations, for example, by managing uneven-aged stands instead of even-aged stands, or by using natural regeneration of spruce instead of clearcutting. As the litigations received wide public attention, the willingness of the forestry boards to negotiate with the land owners increased, and the interpretation of the forestry legislation became more liberal (Hellström 1994). Being mainly related to the forest owner's right to choose his wood production methods, the conflict was not mainly an environmental one. Yet, it changed the implementation of the forestry legislation in a way that may have decreased the intensity of later environmental criticism of the legislation.

On the other hand, even if there is an agreement between interest groups on policy goals and means, the implementation of a policy does not necessarily reflect such underlying goals, owing to, for example, the attitudes of the implementors, technological and economic constraints, pressures from various interest groups

opposing the policy, or contradictory goals of various policies. In such cases, environmental organizations may promote the implementation of the policy by raising public attention to the issue or even force the implementation of the policy by raising law suits against the implementors. In the following, examples of both are given.

An environmental paragraph was included in the Swedish forest law already in 1979, but it was subordinate to the wood production goal, and its implementation was largely neglected, being thus widely criticized by the environmentalists. Research published in the late 1980s (e.g. Eckerberg 1990) also revealed the poor status of implementation and gave the environmentalists strong arguments for challenging the forestry administration. Owing to heavy criticism, the National Board of Forestry initiated follow-up processes (the Greenery projects) on the fulfilment of the environmental goals of the forestry legislation. In order to implement the policy on ground, an extensive education program called Richer Forest was launched. An important feature of these follow-up processes is the participation of a variety of relevant interest groups. Another example of a participatory approach in policy implementation was already described in relation to the "Minnesota process" (section 3.2).

In the USA, the citizens' right to legally challenge the forest management decisions of public land managers on the basis of environmental legislation (e.g. Endangered Species Act, National Environmental Policy Act) has enabled the use of litigation as an even stronger weapon to enforce the implementation of existing policies. For example, the listing of the Northern spotted owl as a threatened species in 1990 was soon followed by several court injunctions which closed the majority of public timber sales in its habitats in the Pacific Northwest, causing great aggravation among timber-dependent communities (Yaffee 1994, Chase 1995). The recent enactment of the "salvage logging rider" (section 3.2) has further escalated the conflict. In addition to direct environmental concern about increased logging, environmentalists have been concerned about the rider denying their right for administrative appeal. Having lost this formal channel of influence, the environmentalists have again intensified their on-site protests.

Not only the national policies but also recent international agreements include future conflict potential related to their implementation. This highlights the importance of participatory follow-up processes of such agreements, including the ongoing international, as well as national work, related to the criteria and indicators of sustainable forestry.

3.5 Markets and economic activities

In addition to the policy formation and implementation processes described above, forest values are transmitted into the use of forest resources through the markets. Values affect the demand for forest products and benefits, whereas forest resources affect their supply. If the markets function perfectly, the use of forest resources is, in theory, a reflection of society's values. Although many environmental benefits are not exchanged in markets, such markets can, to some extent, be created through public

policy measures. If not, conflicts may arise to adjust such biases in the transmitting mechanisms between public values and resource uses.

Particularly in Finland and Sweden whose economies are very dependent on their forest industries, environmental NGOs have campaigned strongly in order to reduce the demand for products produced by companies who cannot verify the environmentally sound production processes (e.g. chlorine-free) and origin of raw material (e.g. clearcut-free). Accordingly, there is an attempt to attach environmental values to the market values of forest products. This is done particularly by setting pressure on the intermediate customers of the forest industry (e.g. printing houses, publishers, retail stores) who operate under direct consumer pressure.

Within this frame, various types of eco-labelling have been initiated by both forest and environmental sectors. In positive eco-labelling, the satisfaction of environmental criteria increases the demand for a product, whereas in negative eco-labelling the dissatisfaction of environmental criteria decreases the demand for the product. An example of the latter are the "wilderness" labels painted by environmentalists on logs cut from disputed areas (e.g. Njakafjäll in Sweden, Kuusamo in Finland, and Skotjernfell in Norway).

The issue of images is closely related to the markets of forest products. As discussed earlier, the impression of consumer values may be more significant in this respect than the prevailing consumer values in the society. In order to impact the values and attitudes of customers and consumers, both the forest sector and environmentalists have launched several image campaigns. The image campaigns of environmental NGOs are often characterized by international cooperation, or they may even be internationally coordinated (e.g. the Taiga Terminator campaign). When aiming at impacting international markets, the forest sector has mostly responded through cooperation on the national front (e.g. PlusForest, Initiative Forst und Holz, Le Bois Avance).

Although having been initiated as a conflict management strategy, forest certification initiatives have also introduced new conflict potential. Of the countries examined, such debate has been strongest in Scandinavian countries who are very dependent upon their forest industries. For example, although German publishing houses have strongly demanded ecological guarantees of forest products, forest certification has been less discussed among the German forest industry. This may be due to the missing linkage between the wood cut in Germany and the paper sold in Germany (the German paper industry is dependent on imported pulp). In France, the forest certification discussion was interestingly taken up by the forest industry before it was taken up by the environmentalists. Owing to a different type of market structure, forest certification has not been debated as much in the USA as in Europe.

Another way of reducing conflicts channelled through the markets is producing information about the non-market values related to forests. In all countries, there is a long history of government intervention in the operation of the markets on the basis of various social needs. Despite the recent high public attention of the forest certification debate, impacting the markets is by no means a new strategy of conflict management. Yet, a difference is that the strategy is today increasingly used by non-governmental instead of governmental organizations.

Environmental forest conflicts are not only related to the images and market structures but also to the market prices of wood and the profitability of forestry. Conflicts in one area may have significant impacts on the prices of wood in other areas. For example, when conflicts led to significant reduction in logging in public forests in the Pacific Northwest, the price of wood increased throughout the country. In Germany, on the other hand, tropical timber bans have significantly increased the prices of domestic substitutes, particularly beech.

Business cycles may also affect the conflicts. In this respect, there is a significant difference, for example, between Finland and Sweden. In the mountainous regions of Sweden, the remotest forests become profitable for logging only under favourable business cycles which, thus, tend to intensify conflicts over the protection of old-growth forests. On the other hand, in Finland practically all forests are economically accessible regardless of business cycles, and such a tendency is not perceptible. However, regressions and booms in the economy may impact values within the society at large and, thus, also indirectly affect the conflicts.

It has also been argued that during economically favourable times, forestry companies can better afford to improve the environmental quality of their forestry operations. Accordingly, conflict potential related to forest management practices would be reduced. On the other hand, growing profits increase the incentives to invest in forestry management, which again may raise the potential for such conflicts. Individual cases were found among the case study countries to support both views. In Germany, the recent profitability crisis of forestry tended to indirectly decrease the intensity of the conflicts, as the fear for economic risks caused by, for example, storm catastrophes and forest decline has introduced more environmentally conscious forest management (e.g. increased natural regeneration, preferation of mixed and uneven-aged stands). In Norway, planting has also decreased as a result of changes in both the price of wood and preference of natural regeneration from an environmental point of view.

3.6 The structure and use of forest resources

Finally, the structure and uses of forests in each country also affect the characteristics of the emerging conflicts. For example, contradictions related to the preservation of old-growth forests have dominated the discussion in countries where their existence has been threatened by forestry (Scandinavia and the Pacific Northwest). On the other hand, a struggle over forest management practices has been dominant in countries, where practically all forests have been formed by human influence (e.g. Germany and Minnesota).

Individual conflicts are usually initiated by a contradictory forest management action taken in a specific locality. In fact, direct on-site action (e.g. civil obedience) against, for example, logging, road construction, and the use of herbicides, has already been used by environmentalists for decades. In all the case study countries or regions, except for Germany and Minnesota, such actions have been taken by the environmental movement at least occasionally. On-site action can significantly affect the use of forest

resources in the locality in question. Therefore, it has been characterized by some as "the last attempt to prevent logging in a specific conflict area when other channels fail". However, direct action has in some conflicts been clearly motivated by the media attention that they raise, and the impacts they have on public opinion and the pressure they place on decision-makers. In some cases, this has also clearly guided the selection of "hot spots".

The conflicts have also affected the use of forest resources and the structure of the forests more directly. This impact has been particularly strong in the Scandinavian countries, where changes in forest management have in many cases been clearly visible. Despite a trend towards more ecologically sustainable forestry in other countries as well, the impact of conflicts is difficult to separate from other influences. For example, as mentioned earlier, the profitability crisis of forestry and economic risks related to previous forestry management practices also supported a shift towards more environmentally sensible forestry in Germany.

Resource data has an important function in the prevention and resolution of environmental forest conflicts. For example, in the Pacific Northwest, many interviewers suggested that the inventories of the Northern spotted owl were prolonged by the lack of comprehensive forestry maps indicating old growth forests of all ownership categories (also Yaffee 1994). However, traditional resource data is not sufficient for successful conflict management. Instead, integrated data on recreationally, culturally, and ecologically important sites are needed. An interesting example of producing integrated resource data is the mapping of "conflict potential areas" by the Vilhelmina Forestry Board in Northern Sweden. These maps, produced in cooperation with researchers and local interest groups, exhibit areas needing special attention because of potentially conflicting interests. The so-called forest function mapping, required in Germany by law, is another example of the use of integrated resource data. Integrated resource data may also be produced within several public participation processes in forest management.

4. DISCUSSION

Four major themes of debate were found in nearly all the six case study countries: forest health, protected areas, forest management, and public land management goals Compared to conflicts in the 1960s and 70s, a theme of diminishing interest was the mechanization of forest work, whereas a theme of rising interest was the social impacts of environmental protection. In the following, variation in conflict themes and intensity is shortly described.

Conflicts in the Pacific Northwest have focused most strongly on forest protection on public lands, including campaigning, litigation, and on-site protests by local grass-root as well as national environmental NGOs. In Minnesota, conflicts have been mild, with forest management as a dominant theme pursued mainly by the state chapters of national environmental NGOs. Both in Minnesota and Germany, conflicts have rarely "localized" to specific sites. In Germany, forest health was a dominant issue until the

mid 1980s, but lately the debate has involved forest management and protection principles more broadly. In addition to disputes at the national level, German environmental NGOs have become very active internationally. Conflicts in France have mostly been local, with great variation in themes. Despite occasional on-site actions, environmentalists have mostly used campaigning as means of influence. The conflicts in Sweden, Finland and Norway have focused both on the protection and management of forests, with multiple use as an additional theme characteristic to Norway. In Sweden, the conflicts have been campaign-oriented and in Norway dispute-oriented, receiving only occasionally attention by the national media. On the other hand, conflicts in Finland have also included frequent well-publicized on-site protests.

Such variation highlights a typical problem of comparative research. Comparative research is generally thought to examine similarities and differences across cases. However, when studying complex phenomena, diversity is often of more interest than commonalities or differences (Ragin 1994). Therefore, an important question is, how do different and even contrasting national circumstances combine to produce the similar type of conflicts that so many countries face today? Only by first recognizing variation can similarities be understood.

As the social structures and processes related forestry in any two countries are different, conflicts in these countries are also likely to originate from different circumstances. For example, problems in value communication have affected conflicts in all countries, although such problems have been most perceptible in the Pacific Northwest. Policy processes have, to some extent, been a source of conflict at least in Germany, France and the Pacific Northwest. Policy goals and means have been strongly focused upon in France, Sweden and Finland. Policy implementation has been under significant pressure particularly in the Pacific Northwest and Sweden. Markets have had a central role in recent conflicts especially in Sweden, Finland and Norway. In the Pacific Northwest and Scandinavia where unprotected old-growth forests exist, the structure of forest resources has also greatly impacted the conflicts.

National differences may often be embedded by the fact that environmental forest conflicts in many Western countries may have a similar appearance at first sight. Instead of similarities in the aspects discussed in this paper, such commonalities may be related to common trends of development of post-modern societies. However, as discussed earlier (chapter 2), this paper aims at discovering variation. Synthesis of the developments in different countries will be available only when the images are later analyzed with systematic techniques of comparison.

A usual argument of foresters as well as environmentalists is that we should concentrate our efforts on finding a commonly agreed set of principles for decision-making related to the use of forest resources. Yet, the examples presented in this paper illustrate how forest conflicts not only originate from policy and decision-making processes, but also from a variety of other sources. For example, there cannot exist value uniformity in society, present day environmental and forest policies are so complex that they usually include some contradiction, policy implementation is rarely perfect, deficiencies exist in the market mechanism's ability to allocate resource uses, and we do not have perfect knowledge of forest resources and ecosystems.

Although such conflicts appear inevitable, there are ways to improve communication, decision-making, policies and policy implementation, the operation of the markets, as well as resource data. In fact, whether conflicts are constructive or destructive largely depends on how they are managed. Conflict management should not only be viewed as a combination of selected decision-making techniques, or a chart of action to be followed. It is equally important to increase our understanding of the role forest conflicts within the transformation of forest policy within a broader frame. Within such a frame, conflict management may be viewed as integral to all activities related to forestry. In order to realize the positive potential of conflicts for social development, which has been pointed out by many scientists (e.g. Coser 1956, Tjosvold 1984, Wondolleck 1988), conflict management strategies should focus on a variety of social, economic and political elements related to forestry in a balanced way. This is a common task for each of us in our own field, may that be in public relations, forest management planning, extension, monitoring, research, procurement, marketing, or any other field.

As mentioned earlier (chapter 2), the images and analytic frame of forestry conflicts presented in this paper are open to revision when the material is finally analyzed with systematic techniques of comparison. One interesting question to be examined in such later analysis is, whether conflicts tend to intensify through other channels, always finding the "weakest available link" of society, if conflict management strategies are only focused on one or few social structures and processes. This is an example of a question that can be answered only through international comparative research and international exchange of experiences.

REFERENCES

Banuri, T. and Apffel Marglin, F. (ed.). 1993. Who will save the Forests? Knowledge, Power and Environmental Destruction. The UN University. World Institute for Development Economics Research (UNU/Wider). Zed Books, London. 195 p.

Chase, A. 1995. In a Dark Wood. The Fight over Forests and the Rising Tyranny of Ecology. Houghton Mifflin Company, Boston and New York. 535 p.

Clinton, W. and Gore, A. 1993. The Forest Plan for a Sustainable Economy and a Sustainable Environment. July 1, 1993. Washington D.C.

Coser, L.A. 1956. The Functions of social conflict. The Free Prsee, New York.

Eckerberg, K. 1990. Environmental protection in Swedish Forestry. Gower Publishing Company Ltd./ Avebury, Aldershot. 179 p.

Hahtola, K. 1990. Pragmatic-hermeneutical human action model for environmental planning. *Hallinnon tutkimus* 9(4):272-288.

Hellström, E. 1994. Backgrounds of Illegal Forest Degradation in Finland. In: Helles, F. and Linddal, M. (eds.). Proceedings of the Biennial Meeting of the Scandinavian Society of Forest Economics. *Scandinavian Forest Economics* 35: 368-378.

Hellström, E. 1995a. Applying Comparative Strategies to International Studies of Forest Conflicts. Paper presented at the XX IUFRO World Congress in August 1995 in Tampere. 15 p.

Hellström, E. 1995b. An International and Interdisciplinary Framework for Investigating Forest conflicts in the Transformation of Forest Policy. Paper presented at the Environment & Society symposium in October 1994, Research Institute for Social Sciences, University of Tampere.

Hellström, E. 1996. Environmental Forest Conflicts, Forest Policies and the Use of Forest Resources. Recent Developments in the USA, Germany, France, Sweden, Finland and Norway. European Forest Institute, Working Paper 7. 72 p.

Hellström, E. and Reunala, A. 1995. Forest conflicts from the 1950's to 1983 - A Review of a comparative study between USA, Germany, France, Sweden, Finland and Norway. European Forest Institute Research Report No. 3. 92 p.

Keltner, J. 1990. From mild diagreement to war: The sruggle spectrum. In: Stewart, J. (ed.) Bridges, not walls. New York, McGraw-Hill. Pp. 319-332.

KenCairn, B. 1995. A Community-based Approach to Forest Management in the Pacific Northwest: A Profile of the Applegate Partnership. *Natural Resources and Environmental Issues* Vol. V. Pp. 43-52.

Kilgore, M.A., Ellefson, P.V. and Rose, G.A. 1994. Innovative Forestry Initiatives. Minnesota Prepares for the Future. *Journal of Forestry* 1(94):21-25.

Koch, N.E. and Kennedy, J.J. 1991. Multiple-use Forestry for Social Values. *Ambio* 20(7):330-333.

Lee, R.G. , Field, D.R. and Burch, W.R. (eds.) 1990. Community and Forestry. Continuities in the sociology of natural resources. Westview Press, Boulder, San Francisco & London. 301 p.

Lehtinen, A.A. 1991. The northern natures - a study of the forest question emerging within the timber-line conflict in Finland. Geographical Society of Finland. *Fennia* 169(1): 57-169.

Löf, M. 1993. Relationen mellan miljörörelsen och skogsbolagen 1970-93. Sveriges Lantbruksuniversitet, Institutionen för skogsekonomi. Arbetsrapport 176. 64 p.

Reunala, A. and Heikinheimo, M. 1987. Taistelu metsistä. Voimaperäinen metsätalous Suomessa ja muissa maissa. Kirjayhtymä, Helsinki.188 p.

Ragin, C. 1987. The Comparative Method: Moving Beyond Qualitative and Quantitative Strategies. Berkeley, CA: University of California Press. 185 p.

Ragin, C. 1994. Constructing Social Research. The Unity and Diversity of Method. Pine Forge Press, Thousand Oaks, California. 194 p.

Tjosvold, D. 1984. Making conflicts productive. *Personnel Administrator*, June 1984, pp. 53,121-130.

Vail, D. 1993. The internal conflict: contract logging, chainsaws and clear-cuts in Maine forestry. In: Banuri, T. and Apffel Marglin, F. (ed.). Who will save the Forests? Knowledge, Power and Environmental Destruction. The UN University. World Institute for Development Economics Research (UNU/Wider). Zed Books, London. Pp. 142-189.

Wondolleck, J.M. 1988. Public Lands Conflict and Resolution. Managing National Forest Disputes. Plenum Press, New York and London. 263 p. Yin, R.K. 1994. Case Study Research. Design and Methods. Second edition. Applied Social Research Methods Series. Vol. 3. Sage publications, Thousand Oaks. 170 p.

Yaffee, S.L. 1994. The Wisdom of the Spotted Owl. Policy Lessons for a New Century. Island Press, Washington D.C./Covelo, California. 430 p.

OUTDOOR RECREATION AND CONSERVATION: CONFLICTS AND THEIR RESOLUTION

Roger Sidaway
Institute of Ecology and Resource Management
University of Edinburgh
UK

ABSTRACT

The paper considers the circumstances in which political struggle is replaced by co-operative negotiation and the role environmental and land managing agencies can play in either triggering conflict or in achieving balanced and lasting outcomes to disputes. It examines case studies of actual and potential disputes between outdoor recreation and nature conservation interests in Britain and the Netherlands using theories of participative decision-making and social conflict. It is based on a study which synthesised these theories to develop a typology of conflict and co-operation considering the observed degree of politicisation and participation in decision-making. This provides a means of assessing interventions by government agencies and their effects on the balance of power between the interested parties.

Key words: Participative decision-making, social theories of conflict, application of theory, site-specific environmental conflicts

INTRODUCTION

Although there is considerable interest in Britain in using consensus building to encourage public participation in planning and mediation as a method of resolving environmental disputes, little action has been taken. A five year research project recently completed by the author (Sidaway, 1996) which examined the application of theory to the problem of predicting the outcome of environmental conflicts is used to examine the lack of progress. The study synthesised theories from two sources - participative decision-making and social theories of conflict - to consider

- the circumstances in which political struggle [potential conflict] is replaced by cooperation/negotiation; and
- the role environmental and land managing agencies play in triggering conflict or in achieving consensus.

Birger Solberg and Saija Miina (eds.)
Conflict Management and Public Participation in Land Management
EFI Proceedings No.14, 1997

DECISION-MAKING TO RESOLVE DISPUTES

The range of techniques commonly used for settling disputes can be portrayed as a continuum that extends from informal discussion, through forms of negotiation, arbitration and litigation to coercion or violent exchanges. Slaikeu (1989) points out that the extremes of this continuum - avoiding the issue and unilateral power play - offer the greatest loss of control over the outcome and hence the greatest risk to the disputing parties. The techniques of Alternative Dispute Resolution (ADR), in which a neutral third party assists the negotiating parties, occupy the central part of this spectrum and have been applied to environmental disputes with some success (Susskind and Cruikshank 1987). The term "alternative" distinguishes these methods from more traditional legal and administrative processes.

Legitimacy and openness of decision-making have been established as critical factors in gaining acceptance for public policy decisions (Sidaway and van der Voet 1993). Public involvement in the planning process may be semi-participatory or participatory. In a closed, non-participatory process there is neither public consultation nor involvement. In a "semi-participatory" process, policy is developed within an organisation without reference to the outside public and it is only when a number of options have been eliminated and a preferred proposal agreed that this is subject to consultation. In a fully open participatory process, interest groups or a wider public are involved at each successive stage of planning. Legitimacy is gained by involving the parties throughout the process, starting in the initial stages of problem definition and analysis, to include the setting of objectives and the consideration of alternative strategies. This level of involvement does not necessarily delay the final agreement (Delli Priscoli 1980).

More exactly, for decision-making to be seen as legitimate, balanced and open:

- the interested parties must participate directly or representative decision makers must be accountable;
- involvement must be early with all parties having a say in the terms of reference and agenda;
- power must be balanced;
- information must be freely available to all parties.

These key points form the basis of a framework which can be used to evaluate whether the outcome of decisions is likely to be seen as fair and legitimate in the eyes of all interested parties. Figure 1 provides an illustration of this form of evaluation which is based on an analysis of a series of Dutch case studies (Sidaway and van der Voet 1993).

CRITERIA	IDEAL	GREVELINGEN	OOSTERSCHELDE	VOORDELTA	DESIGNATION OF NATIONAL PARKS
Terms of Reference	Balanced	Balance sought between objectives despite increasing emphasis on nature conservation	Nature conservation given primacy over most other uses	Balanced goals changed in favour of nature development	Multiple aims, with priority given to nature conservation
Representation	Balanced Direct involvement	Range of interests but no non-government representatives	Representation restricted to officials	Representation restricted to officials	Broad representation and direct involvement at all levels
Power	Dispersed	Held by Management Board	Held by Executive of Steering Group	Held by Executive of Steering Group	Dispersed between local management board and landowners
Information	Freely available Objective Balanced coverage	Available toBoard Independently obtained Balanced	Restricted Objectivity challenged Undue emphasis on recreation impacts	Restricted Objectivity challenged Balance sought by separate research	Widely circulated (not measured) (not measured)
Openness	Participatory with early involvement of interests	Consultation and annual liaison meeting	Consultation at late stage	Consultation at late stage	Frequent consultation from early stages

Figure 1. Summary evaluation of Dutch case studies. (Source: Sidaway and Van der Voet 1993).

Greater co-operation between the interests groups was found in the Grevelingen, where decision-making was balanced and open, than in the Voordelta, whose designation as a nature reserve was disputed. The designation procedures for Dutch national parks provide the potential to reach consensus between the parties.

The political context of the dispute: the issue of power

The success of ADR depends mainly on the willingness of the parties to enter negotiations and this is unlikely to be the case where one party is markedly more powerful than the other. As noted earlier, disputes may be resolved in a variety of ways. Before deciding whether or not to negotiate, the parties will make their own assessment of the risks involved, of the likely outcome if a solution is imposed by politicians or the courts, and of what the effects of such a decision might be on their interests.

Fisher and Ury (1981) argue that the power of the weaker party increases when they have other options to pursue and that, once they realise this, their negotiating position is strengthened. This approach to rectifying imbalances of power has been criticised as a somewhat simplistic view of a fundamental problem (Scimecca 1993). Indeed the major criticisms of ADR arise from assessments of the distribution of power and ADR's inability to effect change when confronted by the planning, administrative, from legal and political systems which depend on the existing power structure of society.

"Policy making processes are rarely politically neutral - procedures for making decisions invariably tend to favour certain kinds of policies and certain kinds of interests" (Amy, 1987, 12).

Nevertheless, there are recognisable benefits from the adoption of participatory decision-making if it can create a potential climate for conflict resolution. It can facilitate contact between resource controllers, landowners, land users and authorities which can lead to the co-ordination of public sector initiatives and the implementation of mutually beneficial policies.

Parallel arguments are to be found within social theory. For example, Thurlings (1962) argued that the outcome of a conflict will be durable where it is based on consensus but only transitory where it is based on the exercise of power. By distinguishing between the ability of an interest group to exercise its rights in using a resource (*autonomy*) and it having some say in the process whereby rights are allocated (*authority),* he confirms the importance of participation in decision-making. He illustrates how one party may work to counterbalance the power of another by establishing the legitimacy of its claim to resources and gaining support on the grounds of social injustice. Thus Thurlings presented an analysis of the competition for access to resources (which is the focus of many environmental conflicts), and how claims for access may be rejected or substantiated either by the exercise of power or through a legitimating social institution. The relationship of the interested parties will be concerned with factors such as the level and ease of communication but also the balance of power between the respective parties. During the struggle between established and new interest groups, their positions may converge to reach consensus and a durable outcome or diverge to perpetuate the conflict.

The dynamic aspects of this process are shown diagrammatically in Figure 2 which attempts to portray the manoeuvring of interest groups as they seek power and legitimacy to maintain or gain social position. Each (coalition of) interest group(s) may be sufficiently powerful to dominate the other. Three possible outcomes of conflict (schemes A to C) and a co-operative negotiation (scheme D) are depicted in this Figure. For simplicity of presentation it is assumed that the outcome of power struggles within rigid social structures (as defined by Coser) can only result in the maintenance or transfer of power and not in negotiation. However a power struggle within a flexible social structure may lead to a durable outcome by reaching consensus. Various logical outcomes are possible ranging from:

- existing groups being able to resist the claims of new groups and thereby maintain the old order;
- existing groups making concessions to new groups resulting in a transitory outcome;
- existing and new groups reaching consensus and a durable outcome;
- the new order superseding the old; and
- no outcome at all, i.e. stalemate.

AFTERMATH/ LATENT PHASE	INITIATION/ ESCALATION	ACTIVE PHASE	OUTCOME/ AFTERMATH
CONFLICT			
Interest groups with **established social position**	react with	**Defensive responses** and/or **Possible coalition forming**	**Maintenance of status quo** resulting in
		Power struggle within **RIGID social structure** resulting in either	**Exercise of power by established groups OUTCOME A**
Interest groups challenging for social position	using	**Proactive tactics** **Possible coalition forming**	or **Transfer of power** leading to **New order in favour of claimant** **OUTCOME B**
	for social position		
CONFLICT			
Interest groups with established social position	react with	**Defensive responses** and/or **Possible coalition forming**	
		Power struggle within **FLEXIBLE social structure** resulting in	**Concession by established groups** leading to **New order** but (Transitory outcome) **OUTCOME C**
Interest groups challenging for social position	using	**Proactive tactics** and/or **Possible coalition forming**	
CO-OPERATION			
Interest groups with **established social position**	react with	**Conciliatory responses**	
		Negotiation within **FLEXIBLE social structure** resulting in	**Consensus** about **New order** and (Durable outcome) **OUTCOME D**
Interest groups challenging for social position	using	**Negotiative tactics**	

Figure 2. Alternative outcomes of conflict.

To understand the circumstances in which co-operation/negotiation arise requires a further consideration of the processes of conflict. More exactly, how the acquisition or accumulation of power is legitimated during a political struggle.

Politicisation, power and their influence in decision-making

The earlier analysis suggested that ideology may be used to advance arguments of principle and thus to improve the legitimacy and social standing of interest groups, since legitimacy is the key to increased power (Coser 1956). Political organisation and lobbying in the corridors of power are of critical importance to interest groups in their attempts to influence the balance of power in their favour. Thus ideology is not sufficient in itself, it is the combination of ideological cohesiveness within a 'close knit' group (in Coser's terms) and the group's political organisation that makes a highly politicised and politically effective force. To further increase their power, such groups may build coalitions with other interest groups or may seek national affiliations.

While the balance of power may be difficult to measure directly, differences in political organisation and the role of ideology are recognisable and these are consistent with the final balance of power and its outcome. This suggests the possibility that politicisation and group cohesion might be used as proxy measures for power. Clear distinctions between the competing interests in the importance of ideology to them, their degree of politicisation and the marked disparities in the distribution of power can be demonstrated in the empirical case studies[1]. For example, nature conservation interests characteristically demonstrate a strong ideological commitment to a conservation ethic and are highly politically organised, while outdoor recreation groups are weaker in these respects (Sidaway 1996). Most of the interested parties in the case studies of co-operation have some degree of ideological commitment, which may be suppressed in the desire to co-operate with others.

There is the further possibility that the criteria taken from theories about participatory decision-making can be included in this analysis to evaluate the social institutions of decision-making and the conditions in which legitimacy is gained. The occurrence of these key elements is summarised in Figure 3 which lists all of the cases according to disparities in the degree of politicisation in the first column and whether the form of decision-making sought to achieve balance in the second.

DEGREE OF POLITICISATION of interest groups		DECISION-MAKING as measured by the balance sought in participation	
Disparities in Politicisation One party being stronger in ideological motivation and organisation than the other(s)	Oosterschelde, Motor Sports, Voordelta.	**Semi-participatory** Unbalanced remit which favours adversarial tactics and lobbying	Peak (previous phase), Skomer (Marine Nature Reserve), Voordelta, Oosterschelde, Motor Sports, Pentland.
Parities in Politicisation The parties being equally strong or weak in ideological motivation and organisation	Bob Marshall Wilderness Area, Dutch National Parks, Grevelingen, Rutland Water, Peak, Pentland, South Stack, Skomer.	**Participatory** Balanced remit and representation which favours negotiation	Peak (recent phase), Skomer (Voluntary Reserve), Bob Marshall Wilderness Area, Grevelingen, Dutch National Parks, Rutland Water, South Stack.

Figure 3. Summary of politicisation and decision-making in the case studies (Source: Sidaway 1996).

By treating disparities in power (using the proxy measure) and decision-making as independent dimensions, it is possible to present the outcomes of (potential) disputes as a typology which depicts the range of outcomes identified earlier (Figure 4). Note that all outcomes on the left-hand side of this diagram are stable as long as the parity of power between the parties is maintained, while outcomes on the right-hand side of the diagram are potentially unstable, at least in the long term, even where the disparities of power are great.

The case studies demonstrate that individual episodes within a continuing dispute may reach different outcomes at different points in time as either the distribution of power or the form of decision-making change, e.g., the Peak which moved from a transfer of power to stalemate and then to an assisted negotiation [the outcome of which is unclear at time of writing].

	Conflict with Minimum change	**Decision-making** Semi-participatory Remit lacks balance and favours adversarial tactics	**Conflict with Maximum change**
PARITY IN POWER	MAINTENANCE OF STATUS QUO: By concession of power SKOMER Abatement: PENTLANDS Stalemate: PEAK(later episodes)	EXERCISE OF POWER MOTOR SPORTS TRANSFER OF POWER: OOSTERSCHELDE VOORDELTA PEAK (earlier episodes)	**DISPARITY IN POWER**
	SHARING OF POWER (i.e., Co-operation) Participatory planning: DUTCH NATIONAL PARKS BOB MARSHALL W'NESS GREVELINGEN RUTLAND WATER Local negotiation based on consensus: Assisted: PEAK (present episode?) Unassisted: SOUTH STACK	EXERCISE OF POWER in favour of the powerful. (no example within the case studies)	
Voluntary Co-operation ("Just" change)		**Decision-making** Participatory (open) Balanced remit favouring negotiation	**Involuntary change ("Unjust" change)**
Outcome stable as long as parity of power is maintained.		Outcome potentially unstable, at least in the long term.	

Figure 4. Typology of conflict and co-operation according to outcome and illustration by the case studies (Source: Sidaway 1996).

THE INSTITUTIONAL POWER OF THE STATE

The case studies also demonstrated the active part played by government agencies as interested parties in a dispute. A conflict episode may be triggered by the action of a government agency, for example, in its proposals to designate parks, wilderness areas or nature reserves (Sidaway 1996). That a conflict should be triggered by government action is hardly surprising. Executive agencies are established and mandated by government to implement government policy. Public policies are likely to be controversial when they directly affect established local interests. Often their remits pursue a sectoral interest and they act partially to further those interests, whether these are in the environmental field or in recreation.

Because of the power of government, the interventions its agencies make within disputes can markedly affect the balance of power. Partial policy interventions may create disparities in the distribution of power, or they may even redress imbalances of power. An example of the latter occurs in the cases of co-operation where plans are prepared for new water bodies, such as Rutland Water. Although this form of participatory planning appears to start with a clean slate, the presence of the national agencies provided the necessary initial balance for the negotiations of interests to proceed.

However the government and its agencies may play a second role - that of arbiter - seeking to balance the claims of competing interests. Resource managing agencies may have a primary purpose which is tempered by the need to balance this with other interests, such as conservation. The interpretation of these obligations -where the balance lies - may be controversial, for example, the management of national forests in the USA may be the subject of conflict (e.g., designation of Wilderness Areas) whilst that of the US national parks is not.[2] It is a simpler task to follow a single remit - to conserve - than a dual one - to produce and conserve. In other cases, planning systems may attempt to act impartially to create a balance between policies or between interests. In this analysis, interventions have been classified as *partial* when they are made in pursuit of a particular public policy (e.g., a government agency acting as interested party or an appeal decision determining whether a public policy should be implemented in a particular case). They are considered *impartial* when balance is sought between a range of interests (e.g., planning new provision or facilitating negotiations between disputing parties).

Within the case studies, both roles can be observed, indeed one arm of government may attempt to initiate change by developing and implementing government policy and acting as an interested party while another arm acts as an arbiter. Examples are given in Figure 5.

INITIAL DISTRIBUTION OF POWER	INTERVENTIONS AS INTERESTED PARTY		INTERVENTION AS ARBITER	
	which create a DISPARITY in the balance of power	which achieve or strengthen a BALANCE of power	IMPARTIAL as facilitator	PARTIAL to achieve policy
PARITY	SKOMER -designation proposal by NCC.	SKOMER - representations by SCW.		SKOMER - Appeal to Welsh Office confirmed suitability as reserve but upheld access for divers.
	PENTLAND - designation proposal by LRC/CCS.			PENTLAND - Public inquiry into designation confirmed suitability of hills as Regional Park.
	OOSTERSCHELDE and VOORDELTA - designation proposals by LNV/NBLF.			OOSTERSCHELDE and VOORDELTA - Executive power used to implement policy.
		PEAK - Multiple interventions over time which may give temporary advantage but result in stalemate.	PEAK - Park Authority employed neutral facilitator for Access Consultative Group.	
INITIAL BALANCE UNCLEAR		Agency representation [GREVELINGEN] RUTLAND WATER, BOB MARSHALL WILDERNESS AREA, DUTCH NATIONAL PARKS.	Participative planning GREVELINGEN, RUTLAND WATER, BOB MARSHALL WILDERNESS AREA, DUTCH NATIONAL PARKS.	
DISPARITY				MOTOR SPORT - Appeals to Department of Environment reinforced the disparity of power in absence of a clear policy favouring some provision for the sport.
EFFECTS OF INTERVENTIONS	Interventions TRIGGER conflict episode	Countervailing interventions achieve BALANCE	Interventions achieve BALANCE	Interventions terminate episode but may not resolve conflict

Figure 5. Interventions of government agencies or the state which effect the distribution of power between the parties and the outcomes of disputes. (Source: Sidaway 1996).

CONCLUSIONS

The original aims of the paper can now be re-considered, namely:

- the circumstances in which political struggle is replaced by co-operation negotiation; and
- the role environmental and land managing agencies play in triggering conflict or in achieving consensus.

The combined analysis of power play and decision-making showed the various effects of intervention on the processes of conflict. Two conditions are required to obtain co-operation: parity in power and an open participatory form of decision-making. These conditions were fulfilled in the cases of participatory planning. Here the balanced presence of the national agencies provided the necessary condition for negotiation from strength, while the balanced ground rules for an open, participative process of planning enabled an equitable solution to be negotiated between the interested parties. In these circumstances, parity between powerful opponents provides a strong incentive for suppressing ideological differences in the interests of reaching agreement.

But in many case studies, partial interventions by government agencies or other national organisations mandated to pursue sectoral policies disrupted the existing balance of power. No examples were studied of the combination of marked disparities in power and impartiality in decision-making. In most cases semi-participatory decision-making was the norm and in these circumstances, the stronger party is likely to prevail.

Thus the evidence from this set of case studies suggests that interventions by the government agencies are likely to have a marked effect on the distribution of power within a dispute. Powerful, sectorally mandated government agencies, operating within an adversarial system of politics, have little interest in seeking balance. Mandates to create balance are rare and impartial arbitration procedures have not been established between the conservation and recreation sectors. Moreover some interventions by the state are deceptive. What appear to be impartial arbitration procedures - consideration of an appeal against a government decision - may not be a neutral processes in that the matter under consideration is whether a policy should be implemented and not how the interested parties will be affected.

In other words, parity in power is more likely to be the determining factor of most environmental disputes of this type and simply changing the system of decision-making from semi-participatory to participatory (ADR) will not in itself produce fair and just solutions.

NOTES

1. The case studies are described more fully in Sidaway 1996.
2. There are notable exceptions where the management of the National Park Service has been heavily criticised, such as wildfire control in Yellowstone National Park (see Chase 1987).

REFERENCES

Amy, D. 1987. The Politics of Environmental Mediation, New York, Columbia University Press.

Chase, A. 1987. Playing God in Yellowstone, Orlando, Harcourt, Brace Jovanovich.

Coser, S. 1956. The Function of Social Conflict, New York, The Free Press.

Delli Priscoli, J. 1980. Developing Public Involvement Evaluations: A Federal Agency Perspective, Unpublished paper given at Washington DC, 4th February, 1980.

Fisher, R. and Ury, W. 1981. Getting to Yes: Negotiating agreement without giving in, London, Hutchinson Business Books.

Scimecca, J.A. 1993. Theory and Alternative Dispute Resolution: A Contradiction in Terms? in: Sandole, D.J.D. and van der Merwe, H. (eds.). Conflict Resolution Theory and Practice: Integration and Application, Manchester and New York, Manchester University Press, pp. 211-221.

Sidaway, R. 1996. Outdoor Recreation and Conservation: conflicts and their resolution.Unpublished Ph.D thesis, University of Edinburgh.

Sidaway, R. and van der Voet, H. 1993. Getting on Speaking Terms: Resolving Conflicts between Recreation and Nature in Coastal Zone Areas of the Netherlands, Literature Study and Case Study Analysis, Woerkgroep Recreatie, Report No. 26, Wageningen, Landbouwuniversiteit.

Slaikeu, K.A. 1989. Systems in the Health Care Industry, in Goldberg, S.B., Brett, J.M. and Ury, W.M. (Eds), Dispute Systems Design: A Special Section of Negotiation Journal, October, 1989, pp. 395-400.

Susskind, L. and Cruikshank, J. 1987. Breaking the Impasse: Consensual Approaches to Resolving Public Disputes, Basic Books.

Thurlings, J.M.G. 1962. The Dynamic Function of Conflict, Lecture delivered before the Netherlands Sociological Society on 26th April, 1962.

RECREATION CONFLICTS IN WILDERNESS: AN INTERNATIONAL COMPARISON WITH IMPLICATIONS FOR CONFLICT MANAGEMENT RESEARCH

Liisa Kajala
Finnish Forest and Park Service
Finland

Alan E. Watson
USDA Forest Service
USA

ABSTRACT

This paper examines similarities and differences in recreation conflicts in wilderness areas of Finland and the United States. Due to different land use history and wilderness legislation, significant differences do exist between the two wilderness systems, having consequences for conflict management and research. From a recreation conflict perspective, the most remarkable difference is that in Finnish wilderness areas conflicts occur most often between recreationists and local people with subsistence orientations toward the area, while in the American wilderness areas conflicts between members of different types of recreation groups have been the most common conflict addressed. Because the American recreation conflict research in wilderness has a much longer tradition than the Finnish one, the applicability of American recreation conflict research in the Finnish context is discussed here. This examination of the two systems suggests that in order to truly support conflict management in Finnish wilderness areas, recreation conflict research needs to be of broad scope in Finland. A similar tendency of moving towards more holistic wilderness management approaches is occurring in the U.S.

Key words: Wilderness areas, recreation conflict, conflict management, Finland, the United States

Birger Solberg and Saija Miina (eds.)
Conflict Management and Public Participation in Land Management
EFI Proceedings No.14, 1997

1. INTRODUCTION

Recreation conflict research related to wilderness has a longer tradition in the United States than in Finland. In the U.S., the current national wilderness preservation system (NWPS) was established in 1964 (Wilderness Act 1964), while in Finland the Finnish Wilderness Act was passed in 1991 (Erämaalaki 1991). This paper compares the wilderness systems and the use of wilderness areas in Finland and in the lower forty-eight states of the U.S. Based on this analysis conclusions can be drawn on the applicability of American recreation conflict research to the Finnish context and some direction for future research in Finland is suggested. Because there is also de facto wilderness in both countries, the comparison of the two wilderness systems is not strictly limited to legally defined wilderness areas.

2. COMPARISON OF NATURAL RESOURCE CONDITIONS AND LEGISLATION

Due to a very different land use history and wilderness legislation, significant differences exist between the wilderness systems of Finland and the U.S., with implications for differences in conflict management needs. However, some similarities exist as well. For example, in both countries most wilderness areas protected by legislation are located in economically less productive areas. In the U.S., wilderness areas are mostly in mountain or desert rural areas, and in Finland they are in the remote northern region. There appear to be two possible explanations for this common feature. First, because of being less productive, and more remote, those areas had remained roadless and fairly untouched by humans until the time of potential wilderness inventories and consequent legislation. Second, especially in the U.S. these are typically very scenic expanses of land, very fitting for recreation and, thus, receive public support for protection from development. The situation is somewhat similar with national parks in both countries, although national parks can be smaller and therefore national parks have also been established to some extent in regions with more value assigned to them.

The 12 existing Finnish wilderness areas were established "to preserve the wilderness character of the areas, to protect the Sami culture and the traditional subsistence use of the areas, and to enhance possibilities for multiple-use of nature" (Erämaalaki 1991). Thus, Finnish wilderness areas are a transition type of nature protection area between national parks, other strict nature conservation areas (established based on Luonnonsuojelulaki 1971/23) and commercial land (Erämaakomitean mietintö 1988, Tynys 1993). This allows the wildernesses to be large in their surface area, but on the other hand leaves the arena open for several controversies. For instance, small-scale logging operations are allowed in certain portions of some Finnish wilderness areas (Table 1).

Table 1. A comparison of the National Wilderness Preservation System (NWPS) in the lower fortyeight states of the U.S, the Finnish Wilderness Areas established by the Wilderness Act of 1991 and other Finnish areas that qualify for wilderness.

	Contiguous United States, NWPS (Wilderness Act 1964)	Finland's wildernesses (Erämaalaki 1991)	Finland's national parks, strict nature reserves and peatland protection areas that qualify for wilderness and are thus protected, although under a different act (Erämaakomitean mietintö 1988)
Year the act was passed	1964 (with subsequent additions)	1991	beginning year 1916
Land management agencies	· USDA Forest Service · USDI National Park Service · USDI Bureau of Land Management · USDI Fish and Wildlife Service	· Finnish Forest and Park Service	· Finnish Forest and Park Service · Finnish Forest Research Institute
Total number of areas	630	12	17
Surface area: · hectars · percentage of nation's surface area	41 924 825 ha (103 596 000 acres) 4.7 %	1 489 000 ha 4.4 %	942 000 ha 2.8 %
Size	· minimum of 2 000 ha or some entrusting characteristic worth of protection	· minimum of 15 000 ha · usually more than 10 km wide	
Prohibition of certain uses	· commercial operations · permanent roads · temporary roads · motorized vehicles · motorized equipment · motorboats · landing of aircraft · other form of mechanical transport (e.g.mountain bikes) · structures or installations	· new permanent roads · logging restricted · mining requires a permission from the Finnish governement	· new permanent roads · primary goal is nature protection · commercial logging

Allowance of certain uses prohibited or not occurring in at least one of the other areas	· cattle grazing · water impoundments · air plane landing strips	· reindeer herding · huts and other constructions for recreationists · removal of firewood by park personnel for the use at huts · snowmobiling and off-terrain vehicle driving by local people · recreational snowmobiling on routes · helicopter and hydro plane flights for subsistence users and recreationists	· reindeer herding · huts and other constructions for recreationists · removal of firewood by park personnel for the use at huts · snowmobiling and off-terrain vehicle driving by local people

U.S. wildernesses were established to preserve areas "...where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain..." (Wilderness Act 1964). Because of the more strict restriction on human presence in wilderness, the situation in the U.S. is quite different from Finland. The U.S. wilderness areas are more strictly protected from human influence than are national parks, which in the U.S. usually include roads and commercial services. Therefore, in many cases wilderness areas have also been established within U.S. national parks, among other things to maintain certain roadless areas. In Finland this kind of dual protection would not be of practical significance because in the Finnish national parks construction of new roads is generally prohibited and other uses are also more strictly controlled than in the Finnish wilderness areas.

Something similar to the legislatively founded U.S. wilderness areas within national parks exists in larger northern Finnish national parks. In Finland there are several management regions within each park, one of the most remote being called a wilderness zone. However, the reasons for establishing administratively these zones in Finland differ from the reasons for establishing legislatively wilderness areas within the U.S. national parks. In Finland the wilderness zones within national parks are established where there is less recreational use and therefore more wilderness-like conditions prevail. Consequently, less regulation is also needed in these zones, thereby providing recreationists with a less regimented experience. This system is possible as long as only a few people are interested in going to these regions. In the U.S. it is sometimes quite the opposite; wildernesses within national parks are often very popular and use patterns are sometimes strictly controlled.

In both countries there are also lands outside legally designated wilderness that qualify for wilderness. In the U.S., millions of acres of land are still being considered for future inclusion as wilderness, and thus, must be managed essentially as wilderness until decisions are made. There are also many hectars of de facto wilderness still in existence outside of protected areas. In Finland, the de facto wildernesses comparable to those established by the Finnish Wilderness Act are protected based on some other legislation (e.g., larger northern Finnish national parks, Table 1) or agency policy.

3. ESTIMATES ON LEVELS AND TYPES OF USE

Because of the historical land use background and consequent legislation, a more broad range of activities are allowed in the Finnish than in the American wilderness areas (Table 1). In general, there is less non-local recreational use in Finnish wilderness areas than in the American areas. Because of their remote locations, the amount of single day visits to Finnish wilderness areas is relatively low compared to the U.S. On the other hand, Finnish national parks start right from the road side and therefore get high day use numbers. Thus, a couple of Finnish national parks with wilderness zones receive substantial recreational use though most of it is single day use (Table 2).

Table 2. Comparison of recreation use in some wilderness areas and national parks (Enojärvi 1996, Hall and Shelby 1994, Hokkanen 1995, Saarinen 1995, Shelby and Hall 1992).

	Total number of recreationists visiting the area	Number of overnight visitors	Main use season(s)	Surface area
Eagle Cap Wilderness Area, USA, year 1993	33 000	7 000	July-September	143 400 ha
Three Sisters, Mt Jefferson and Mt. Washington Wilderness Areas (adjacent to each other), year 1991	80 000	20 000	June-October	178 000 ha
Käsivarsi wilderness area, Finland (2nd largest legally founded wilderness ara), year 1993	5 000	5 000	two seasons, over 80 % of use occurs in four months: April-May 46 %, July-August 36 %	221 000 ha
UK National Park, (among the most popular Finnish national parks), year 1994	200 000	6 000	some use all-year-round, although main seasons March-May and July-September	254 000 ha
Lemmenjoki National Park (largest national park in Finland), year 1994	10 000	?		286 000 ha

Because wildernesses in both countries are located in harsher climates, recreational use is usually highly concentrated in relatively short seasons. For example, over 80 % of the recreational use of Käsivarsi Wilderness Area occurs in four months: April-May (46 %) and July-August (36 %) (Enojärvi 1996).

A difference exists in the level of dependence on human-created trails. Off-trail hiking appears to be more common in Finland while in the U.S. hikers mostly use maintained trails to reach destination locations within the wilderness. This can be due to the fact that, for the most part, Finnish wildernesses are located in fairly easy terrain and therefore there has not been much need to establish trails. Also, some variation in activities can contribute to this difference; in Finland picking berries and mushrooms is very popular and requires one to leave trails. In the U.S., while picking berries and mushrooms are also popular activities in some wildernesses, visitors more likely hike or ride horses to lake basins, scenic vistas, or mountain streams for camping, picnicking, fishing, or hunting. However, it seems that in Finland, people - especially foreign visitors who often find it difficult to orienteer in terrain without major landmarks - are beginning to express desires for established trails.

In northernmost Finland, where all of the Finnish wilderness areas are located, local people depend heavily on the wilderness areas for their traditional sources of livelihood, i.e., reindeer herding, hunting, fishing and picking berries. Therefore, one of the main reasons for establishing Finnish wilderness areas was to secure future possibilities for traditional sources of livelihood. There is also a requirement to maintain a thriving Sami culture, which is based on reindeer herding and other closely nature dependent sources of livelihood. Thus, these areas are of substantial importance to the local people, not only economically, but also socially and culturally. The Finnish Wilderness Act in itself was valuable to local people in that it provided protection for these areas from uncontrolled development. To the local people, however, there is no such thing as wilderness as it is protected by the wilderness legislation. Especially this is the case with the Sami people, who in the past considered the whole wilderness as their home because they roamed these areas with reindeer herds. The local people traditionally just go "to the mountains" or "to the forests", while wilderness is a more popular concept amongst non-local recreationists (Hallikainen 1993).

In the U.S., only recently have accurate perceptions of trends in wilderness recreation use and user characteristics been documented. Cook and Borrie (1995) concluded that recreation is still one of the biggest uses of wilderness (or at least the most studied/reported on) and the types of recreation activities pursued in wilderness have remained roughly the same for many years. Total recreational use of wilderness in the U.S. has steadily increased since passage of the Wilderness Act in 1964. Most wildernesses are experiencing growth in visitation, even though many experienced a period of declining use during the 1980s (Cole 1996). Visitors seek first and foremost the wilderness values of solitude and renewal. Wilderness managers and the public alike, however, are beginning to focus more on values beyond the purely recreational use of wilderness. What the American people value about wilderness, in addition to what they do in wilderness, should guide how it is described and managed (Cook and Borrie 1995). To date, most studies have focused on recreational use of wilderness but

now more interest is being displayed by scientists in studying relationships between humans and nature and this is likely to be the focus of many future studies and of future management.

Across the U.S., partly because of the relatively young European settlement in the west and the much earlier settlement of lands to the East, the ties of people currently living in proximity to wilderness vary greatly. In the U.S. there was often local objection to establishing wildernesses because that would restrict logging or mining, important livelihoods and contributors to a meager revenue base for many rural communities. Some exceptions for mining, cattle grazing, airstrips and irrigation water impoundments were written into wilderness legislation to accommodate historic uses for some areas in the West.

More commonalties are found between Finland and Alaska. In Alaska there are aboriginal people living close to the wilderness areas and the conflicts between recreation and subsistence use of wildland resources are a significant issue (Muth 1995). Moreover, legislation which added Alaska wildlands to the NWPS allowed several exceptions to accommodate native people's dependence on these lands. To this point, great pains have been taken to ensure continued subsistence access by native Alaskan people, though expanding research to adequately address the conflict between subsistence and recreation users has not been accomplished.

4. IMPLICATIONS FOR RECREATION CONFLICT RESEARCH AND MANAGEMENT

From a recreation conflict perspective, perhaps the most remarkable difference is that in Finnish wilderness areas conflicts occur most often between recreationists and local people with subsistence orientations toward the area, while in the wilderness areas of the U.S. conflicts between members of different types of recreation groups (e.g., hikers and horse riders, llama users and others) have been the most common conflict addressed, and thus, the topic of study. This is due to the above-described differences both in wilderness legislation and use patterns. Considering the latter, i.e. use patterns, the fact that generally less recreation occurs in Finnish wilderness areas in itself reduces the occurrence of many intra- and interactivity recreation conflicts (Kajala 1995). Considering the former, i.e. legislation, American wilderness legislation is much more restrictive of human presence than the Finnish one. Thus, the American Wilderness Act, per se, greatly reduces some conflicts that are encountered in Finland. This reflects a basic difference between the Nordic and American land management cultures. The U.S. has traditionally been more segregative in its land management, whereas Nordic countries have had, partly due to longer habitation history and a smaller land base, a more integrative approach (Sievänen and Knopp 1992, Stankey 1995). The trend in the U.S., however, is toward more integrative approaches to natural resource management. The ecosystem management approach adopted by federal land management agencies and some private industries in the 1990s are promising tools which aim towards higher integration of natural resources management with

implications of a need for more broad understanding of the bases of conflicting demands for all natural resources.

There has been a substantial amount of research on conflicts between recreationists in the United States for several decades (e.g., Blahna et al. 1995, Driver and Bassett 1975, Jacob and Schreyer 1980, Knopp and Tyger 1973, Lucas 1964) with a recent renewed interest in the topic (Hendricks 1995, Watson 1995). It is, of course, possible to study conflicts between recreationists also in Finland, and to a limited extent that has been done (e.g., Saarinen 1995). However, researchers, and especially managers, are becoming increasingly concerned about comments on how recreationists disturb traditional sources of livelihood and vice versa. An example is the conflict between skiers and snowmobilers. The subsistence users commonly use snowmobiles and all-terrain vehicles in their work. Some recreationists question whether these uses are appropriate, much as traditional horse use in wilderness in the U.S. is questioned today. On the other hand, some reindeer herders are concerned about the relatively new appearance of recreational dogsledding in areas where it has not existed previously. They are afraid of the impact these dogs and this activity may have on their reindeer herds.

Consequently, in order to focus on the issues surrounding conflict management in Finnish wilderness areas, recreation conflict research needs to be of wider scope in Finland than what it has traditionally been in the contiguous U.S. Thus, in northern Finland and its wilderness areas, a broader definition of recreation conflict is needed. The following, expanded from Kajala (1994) is a potential starting point:

Recreation conflict is any antagonistic psychological or social relation or antagonistic interaction attributed either directly or indirectly to other people, and where at least one social actor is a recreationist.

This definition encompasses even the most indirect recreation conflict, e.g., conflicts between reindeer herders and tourism entrepreneurs, with differences in opinion about the desirability of promoting tourism in the region. These issues are encountered in Finland, for example in Käsivarsi Wilderness Area and UK National Park. The definition also supports the more integrative land use management approaches.

When developing new research projects, the commonalties between Finland and Alaska should be kept in mind. Comparisons between Finland and Alaska could be particularly frutiful because they would be truly cross-cultural, with several cultures involved, instead of being just international. Findings of earlier, mostly American recreation conflict studies could be used to a limited extent as a starting and reference point. For example, the common finding that recreation conflicts between motorized and non-motorized users are asymmetric may not be the case in conflicts between consumptive recreation uses and subsistence use of the areas (Muth 1995).

Research methodologies must be developed and tested to address the specific conflict issues in Finland. Watson (1995:237) has pointed that even in recreation conflict research in the U.S., there is much discussion of social conflict and even some interest in differentiating it from the more traditional interpersonal conflict measures. We are introducing social conflict, values conflict and social acceptability, yet we are still using psychometric measurement methods to assess this type of conflict. There

seems to be opportunity to move to other methodologies and measures to describe these more broad differences.

Research methods developed for studying the role of place attachment and social and cultural meanings of areas in recreation conflicts (e.g., Brandenburg and Carroll 1994, Gibbons and Ruddell 1995, Williams 1993) may have particular application potential in Finnish wilderness areas. These studies are likely to be more qualitative, focus less on recreation motivations, and more on the relationships people have with the landscape.

In terms of selecting conflict management techniques, recent American research on the impacts different techniques have on recreation experiences (e.g., Asp et al. 1996, McCool and Lime 1989, Watson and Kajala 1995) is likely to be important also in Finland. Traditionally, management options have been described as direct or indirect based upon the levels of management presence, with the belief that the less visible management is, the less impact the technique has on visitor experiences. This impact has been measured and described as obtrusiveness. However, for some conflict situations it can be that more direct approaches to management may be the least obtrusive to those involved. This question remains to be addressed for situations involving greatly diverse user groups such as in Finland wilderness.

Conflict management techniques are, however, more limited in Finland than in the U.S. due to the traditional right of common access (Hammitt et al. 1992). Moreover, the facts that there are less trails in Finnish wilderness areas and Finns are more used to cross-country hiking, suggest that recreation conflict management by segregating uses is often not an option in Finland. On the other hand, recreational opportunity spectrum (ROS, Brown et al. 1979) has proven to be and continues to be a useful management tool also in Finland (e.g. Hammastunturin erämaa-alueen... 1996, Pöyrisjärven erämaa-alueen... 1996).

REFERENCES

Asp, C.H., Watson, A.E. and Walsh, J.A. 1996. The obtrusiveness of recreational conflict mangement techniques. Unpublished report to Recreation Equipment Incorporated, on file at the Aldo Leopold Wilderness Research Institute. 43 p.

Blahna, D.J. Smith, K.S. and Anderson, J.A. 1995. Backcountry llama packing: visitor perceptions of acceptability and conflict. *Leisure Sciences* 17: 185-204.

Brandenburg, A.M. and Carroll, M.S. 1994. Your place, or mine: The effect of place creation on environmental values and landscape meanings. Paper presented at The Fifth International Symposium on Society and Resource Management. Fort Collins, Colorado. June 7-10, 1994.

Brown, P.J., Driver, B.L., Bruns, D.H. and McConnell, C. 1979. The Outdoor Recreation Opportunity Spectrum in wildland recration planning: development and application. In: First Annual National Conference on Recreation Planning and Development. Snowbird, Utah 1979, April 18. New York: American Society of Civil Engineers. pp. 527-538.

Cole, D.N. 1996. Wilderness recreation use trends, 1965 through 1994. USDA Forest Service, Research Paper INT-RP-488. Ogden UT: Intermountain Research Station. 11 p.

Cook, B. and Borrie, W. 1995. Trends in recreation use and management of wilderness. *International Journal of Wilderness* 1(2): 30-34.

Enojärvi, K. 1996. Autio- ja varaustupien huoltokustannukset. Päättötyö. Rovaniemen metsäoppilaitos. 8 p + appendices.

Erämaakomitean mietintö 1988. Komiteamietintö 1988: 39. Valtion painatuskeskus, Helsinki. 238 p.

Erämaalaki 1991. [The Finnish Wilderness Act] Suomen säädöskokoelma, law number 62, pp.129-143.

Driver, B. L. and Bassett, J. R. 1975. Defining conflicts among river users: a case study of Michigan's Au Sable River. *Naturalist* 26: 19-23.

Gibbons, S. and Ruddell, E.J. 1995. The effect of goal orientation and place dependence on select goal interferences among winter backcountry users. *Leisure Sciences* 17: 171-183.

Hall, T. and Shelby, B. 1994. Eagle Cap Wilderness: recreational use and impacts. Enterprise, Oregon: Eagle Cap Ranger District, Wallowa-Whitman National Forest. 205 p.

Hallikainen, V. 1993. The social wilderness in the minds and culture of the Finnish people. In: Hendee, J.C. and Martin, V.G. (eds.). International Wilderness Allocation, Management, and Research. Proceedings of a symposium during the 5th World Wilderness Congress, Tromsø, Norway, September 1993. pp. 259-266.

Hammastunturin erämaa-alueen hoito- ja käyttösuunnitelma. Metsähallitus 1996. Metsähallituksen luonnonsuojelujulkaisuja. Sarja B: 73 p.

Hammitt, W.E., Kaltenborn, B.P., Vistad, O.I., Emmelin, L. and Teigland, J. 1992. Common access tradition and wilderness management in Norway: a paradox for managers. *Environmental Management* 16(2): 149-156.

Hendricks, W.W. 1995. A resurgence in recreation conflict research: introduction to the special edition. *Leisure Sciences* 17: 157-158.

Hokkanen, M. (ed.) 1995. Metsähallituksen luonnonsuojelualueet. Toimintakertomus 1994. Metsähallituksen luonnonsuojelujulkaisuja. Sarja B: 23. 42 p.

Jacob, G. R. and Schreyer, R. 1980. Conflict in outdoor recreation: a theoretical perspective. *Journal of Leisure Research* 12: 368-380.

Kajala, L. 1994. The applicability of conflict theories in outdoor recreation: a case study of hikers and recreational stock users in the Eagle Cap Wilderness. Thesis for the Licentiate degree. Joensuun yliopisto. 134 p.

Kajala, L. 1995. Conflict management principles emerging from social sciences: their applicability in northern wilderness areas. *Arctic Centre Publications* 7: 271-283.

Knopp, T. B. and Tyger, J. D. 1973. A study of conflict in recreational land use: snowmobiling versus ski-touring. *Journal of Leisure Research* 5: 6-17.

Lucas, R. C. 1964. Wilderness perception and use: the example of the Boundary Waters Canoe Area. *Natural Resources Journal* 3: 394-411.

Luonnonsuojelulaki 1971/23. [The Finnish Nature Conservation Act].

McCool, S.F. and Lime, D.W. 1989. Attitudes of visitors toward outdoor recreation policy. USDA Forest Service General Technical Report SE-52. Southeastern Forest Experiment Station, Athens, GA, pp. 401-411.

Muth, R.M. 1995. Conflicts between recreation and subsistence use of wildland resources in Alaska: a research problem analysis. Technical Report. Cooperative Park Studies Unit, USDI National Biological Service, Seattle, WA and Aldo Leopold Wilderness Research Institute, USDA Forest Service, Missoula, MT. 53 p.

Pöyrisjärven erämaa-alueen hoito- ja käyttösuunnitelma. Metsähallitus 1996. 34 p. (manuscript)

Saarinen, J. 1995. Urho Kekkosen kansallispuiston retkeily-ympäristön viihtyvyys. Metsähallituksen luonnonsuojelujulkaisuja. Sarja A: 37. 77 p.

Shelby, B. and Hall, T. 1992. Wilderness monitoring in 1991: Mt. Jefferson, Mt Washington and Three Sisters Wildernesses. May 31, 1992. Oregon State University. 78 p.

Sievänen, T. and Knopp, T. 1992. Outdoor recreation in Finland and Minnesota: Integration vs. designation. In: Sievänen, T. (ed.) Nordic Outdoor Recreation. International Comparative Studies. Proceedings of the workshop held in Siuntio, Finland 9.-10.9.1992. Metsäntutkimuslaitoksen tiedonantoja 439. pp. 9-31.

Stankey, G.H. 1995. Integrated natural resource planning and management: social science perspectives. In: Koriplahti, E., Mikkelä, H. and Salonen, T. (eds.) Caring for the Forest: Research in a Changing World. IUFRO XX World Congress, August 6-12 1995, Tampere, Finland. pp. 391-398.

Tynys, T. 1993. Management and planning of the wilderness areas in Finland. In: Hendee, J.C. and Martin, V.G. (eds.). International Wilderness Allocation, Management, and Research. Proceedings of a symposium during the 5th World Wilderness Congress, Tromsø, Norway, September 1993. pp. 88-92.

Watson, A. 1995. An analysis of recent progress in recreation conflict research and perceptions of future challenges and opportunities. *Leisure Sciences* 17: 235-238.

Watson, A.E. and Kajala, L. 1995. Intergroup conflict in wildereness: balancing opportunities for experience with preservation responsibility. Arctic Centre Publications 7: 251-270.

Williams, D.R. 1993. Recreation and multi-resource conflict: a framework for examining public ties to place. Working paper based on presentation at Connections Seminar Series, USDA Forest Service, Washington Office. November 19, 1993. 7 p. + appendices.

The Wilderness Act 1964. Public Law 88-577.

FORESTRY CONFLICTS AFTER WORLD WAR II IN JAPAN

Toshiyuki Tsuchiya
Iwate University
Japan

ABSTRACT

In this paper, conflicts regarding forest resource use in Japan from the 1950s up to now are summarized. From the view point of conflicts occurred, the period after the 1950s can be divided into three phases: before the mid 1970s, when large-scale forestry development was accused by the public and the Forest Agency amended its forest operations regulation more environmentally-oriented; from the mid 1970s to the end of the 1980s, when forest development in wilderness areas evoked the nationwide controversy and the agency was obliged to reform its nature reserve system and to take multiple use policy; after the end of the 1980s, when resort development prevailed all over Japan and numerous grass-roots environmentalist groups raised objections. Compared with the European or the North American countries, Japan seems to have experienced more serious conflicts in recent years. One of the reasons is the lack of public participation in the national forest management system. Distrust between the agency and the environmentalist groups created a high barrier to mutual understanding.

Key words: Forestry conflicts, Japan, nature conservation, public participation

1. INTRODUCTION

An outline of conflicts regarding forest resource use in Japan from the 1950s to the 1990s is shown in this paper. The aim of the paper is to present the Japanese case in forestry conflicts which Hellström and Reunala (1995) examined in five European countries (Germany, France, Sweden, Finland and Norway) and in the United States. As one of the developed countries, Japan has had an almost similar experience as the six countries above have. However, as one of the eastern Asian countries which have unique cultural and historical backgrounds, Japan has some different factors affecting forest use and the environmental movement.

Birger Solberg and Saija Miina (eds.)
Conflict Management and Public Participation in Land Management
EFI Proceedings No.14, 1997

In this study, the period after World War II is divided into three phases: from the mid-1950's to the mid-1970's; from the mid-1970's to the 1980's; and after the end of the 1980s up to now. Index of division is change of the management policy for the national forests which have been the target of criticism from nature conservation organizations.

The national forests managed by the Forestry Agency occupy one third of the total forest areas (25 million ha) in Japan. As it includes a lot of highlands and wild areas, environmental conflicts have been concentrated on the national forests. Therefore, the following description will be mainly focused on the national forests.

2. THE MID-1950S TO THE MID-1970S: THE BEGINNING OF THE NATURE CONSERVATION MOVEMENT

2.1 Development of forestry

In this phase, especially in the 1950s, timber demand was rapidly increasing and the supply /demand balance was very tight. In order to meet the demand, the Forestry Agency, which managed the national forests, began to exploit low-developed areas in the national forests. The National Forest Production Reinforcement Plan was established in 1958. The Timber Production Increase Program was also carried out in 1961. Under these plans, large-area clearcutting of natural forests, artificial plantation and forest road construction were introduced nationwide. Herbicide spreading was also widely used. For example, harvest by clearcutting method occupied only 32% of the total timber volume in 1950. It rised to 83% in 1970. From the mid-1950s to 1980, about one million ha natural broad-leaved forests were converted into man-made coniferous forests in the national forest system land (Yorimittsu 1984).

2.2 Beginning of the nature conservation movement

On the other hand, the nature conservation movement became active in the 1960s. At the beginning, nature conservation organizations were organized by intellectuals in urban areas. Yorimitsu (1984) pointed out that such an "external" movement contrasted with the grass-roots one was the mainstream of the Japanese nature conservation movement in the early stage. One of the main targets of the movement was the national forests. They accused the Forestry Agency of nature destruction caused by forestry development mentioned above. Mass-media supported them. Particularly the clearcutting of old-growth forests in wild areas, such as Yakushima island or Oku-Chichibu Mts., became a national issue.

2.3 The new environmentally-oriented policy in forest development

As countermeasures against the widespread criticism of forestry development, the Forestry Agency changed the regulation of forestry measures in 1973. In this new regulation, forestry measures in the national forests were drastically changed and became more environmentally oriented. For example, a shift from large-area clearcutting to dispersed small-area clearcutting or selective cutting; exclusion of riparian zone and the ridge area of mountains from forestry operations; withdrawal of forestry development in semi-alpine area. As a result, the amount of lumber production decreased drastically.

3. THE MID-1970S TO THE 1980S: THE THREE MAJOR NATURE CONSERVATION DISPUTES

This phase is characterized by the nationwide nature conservation disputes occurring in the national forests. There are three major disputes in this period: the South Alps "super" forest road dispute; the Shiretoko national forest dispute; the Shiragami Mts. dispute.

3.1 The South Alps "super" forest road dispute

The Japanese South Alps is one of the highest alpine mountain groups in the central plateau of the Honsyu island, which is the largest island in Japan. The conflict occurred when a semi-governmental organization called the Forest Development Corporation planned to open a high-standardized forest road passing through the heart of the national park. Many nature conservation groups opposed the plan. However, in spite of forming pickets on construction sites in 1978 and 1979, they failed to ban the road construction.

3.2 The Shiretoko national forest dispute

In the Shiretoko case, selective cutting of an old-growth forest in a national forest within the bounds of the Shiretoko national park was disputed nationwide. In the Japanese national park system, a variety of ownership (public and private) is allowed within the boundaries. The Environment Agency which has jurisdiction over the national parks can only classify lands within the boundaries and regulate land use based on the classification. Therefore, in this case, the plan of selective cutting did not violate the Natural Park Act of Japan.

In this case, many environmentalist groups at the communal, prefectural and national level joined together to oppose the Forestry Agency. On the other hand, the Forestry Agency accepted to negotiate with representatives of leading nature

conservation organizations for the first time. Mass-media had picked up related incidents as news and invited many commentators to the controversy.

Finally, the Forestry Agency forced cutting among aggressive opposition activities of environmentalist groups in 1987. After the cutting, criticism to the Forestry Agency grew very strong and very wide all over Japan. Therefore, the Agency decided to stop cutting in the area after the only one harvest.

3.3 The Shiragami Mts. dispute

In the Shiragami case, forest road construction passing through the core of the largest old-growth beech forest in Japan was the problem. In 1980, the Akita prefectural government requested the Ministry of Agriculture, Forestry and Fisheries of the Japanese government to construct an inter-prefectural forest road between Akita and Aomori prefecture. Some nature conservation groups demanded a stop to the construction of the road in 1982 while both prefectural governments began it. At this time, the long-lasting Shiragami dispute began.

The primary purpose of the road construction was the development of timber resources in the Shiragami mountains, of which difficulty of access had prevented the massive use. Meanwhile, that non-accessibility left the large-area old-growth beech forest which used to be very popular in the central and northern Japan mountain areas but remained in fragments because of forestry development. That was why the road construction was supported by local timber industries enthusiastically and was protested by environmentalists and scientists strongly.

From 1982, the protest movement spread nationwide and penetrated into local communities while construction work continued steadily. Finally, an unexpected number of comments of objection against road construction submitted by local residents made the two prefectural governments abandon the completion of the road. Based on the Forestry Act, related local residents can submit comments of objection when the government plans to appoint or abolish a "protection forest" area where road construction is prohibited. In the Shiragami case, abolishment of the "protection forest" area in the riverhead of the Akaishi river was crucially needed to complete the road.

3.4 The Advisory Committee for Forestry and Nature Conservation in the National Forests

Just after the cutting in Shiretoko and at the peak of criticism in Shiragami, the Forestry Agency organized "the 1987 Advisory Committee for Forestry and Nature Conservation in the National Forests". Its task was to establish a new policy for nature conservation in the national forests. After a year discussion, the committee submitted to the Director General of the Forestry Agency a report to propose the drastic reformation of the forest management system in the national forests. The main points of proposal were:

Introduction of new multiple land use planning;
Reformation of the forest reserve system;
Research on forest ecosystem and multiple-use forestry;
Public participation in the forest management planning process;
Promotion of voluntary activities and introduction of donations.

In the attached list of the report, Shiragami, Shiretoko and the other several areas were nominated as candidates of the Forest Biosphere Reserves (FBR). One year later, Shiragami and Shiretoko FBR were established. Since the establishment of the FBRs meant an everlasting ban on cutting and road construction, the Shiretoko and Shiragami disputes finally came to the end. Submission of the report was a valuable turn from timber-production oriented forestry to multiple-use forestry. It was the most important turning point of forest policy recently in Japan.

4. AFTER THE END OF THE 1980S: GRASSROOTS MOVEMENT AND INTRODUCTION OF PUBLIC PARTICIPATION IN THE NATIONAL FOREST MANAGEMENT

4.1 Conflicts on resort development

In the 1990s, precisely from the end of the 1980s to the 1990s, this phase is characterized both by the conflicts on resort development and by realization process of the proposal of the committee mentioned above.

Concerning resort development, in the period from the end of the 1980s to the beginning of the 1990s, there was a resort development boom. All over Japan, everywhere, western style modern resort complex development which typically contained a high-grade hotel, a golf ground, a ski area and a condominium were planned and built. For example, annual net increase of golf grounds which was under 10 in the beginning of the 1980s, rose to around 30 in the mid-1980s, and peaked at 96 in 1990. Such development boom, of course, caused nature destruction. Many nature conservationists protested against development plans. In this period, many local groups, what we say grassroots groups, dealing with local and individual problems, were born and played key role in the movement. As development sites were mainly located in private lands, the Forestry Agency was not one of the main actors in the conflicts. However, the agency was also accused in cases involving the national forests.

4.2 Realization process of the proposal of the 1987 advisory committee

On the other hand, the proposal of the 1987 advisory committee was gradually realized in the 1990s. Especially the establishment of the Forest Biosphere Reserve (FBR) was epoch making. Some members of nature conservation organizations were appointed as

members of the committee for the establishment of each FBR (Tsuchiya 1995). This was the first case that nature conservationists participated in the decision-making process of the national forests land use. Up to now, nearly 30 FBRs have been established in the national forests all over Japan.

In the Shiragami case, seven of 36 members of the Shiragami Mts. FBR establishment committees (both the Aomori national forest regional office and Akita regional office established a committee separately) were environmentalists. A more important matter in the Shiragami case was that, after the establishment of the FBR, the area was designated as a World Natural Heritage site of UNESCO. Rising argument about management policy in the World Heritage area urged the new inter-agency management committee to hold a public meeting and collect comments about a draft management plan. It was the first time the Forestry Agency allowed public participation in management planning procedure of the national forest land. The inter-agency committee led by the Forestry Agency have held another series of public meetings since June, 1996. Indeed, it will be the first case that we have plural public meetings in a same area of the national forests.

5. DISCUSSION

5.1 Leadership of the nature conservation movement

The early stage of the nature conservation movement in Japan was led by intellectuals living in urban areas. For example, the directors of the Hokkaido Nature Conservation Association, one of the most active and long standing local environmental organizations in Japan, were university professors and large company executives at the time of its establishment in 1964 (Yagi 1995) .

In the first phase which we have discussed, most of the movements were led by organizations composed of city dwellers, mainly intellectuals, alpinists and naturalists. From a local residents' point of view, those were "external" movements. Therefore, most of the movements in the 1960s failed to get support from local residents.

However, as several authors of the history of the nature conservation movement have pointed out, the year of 1970 was the turning point in the Japanese nature conservation movement. In July of that year, three months after the first "earth day" held in the Unites States, rallies under the slogan of "Return Our Nature!" were held simultaneously at 13 sites from the north to the south of Japan (Sakai 1975). The rallies were promoted jointly by local nature conservation organizations, most of which were concerned with citizens' movements to protect nature in suburban or urban areas. With this joint rally as a turning point, leadership of nature conservation movement shifted gradually from urban intellectuals to local residents.

Concerning forestry conflicts, the South Alps "super" forest road dispute occurred just in the transition period of the nature conservation movement discussed above. Though city dwellers still had leadership in the movement, the dispute was mainly

focused on the question of which had priority: regional development in handicapped areas or nature conservation in highly valuable alpine areas. It was the first time nature conservationists also argued the socio-economic effectiveness of the road construction with the pro-development residents.

In the Shiragami and Shiretoko cases, local residents played important role in the movements while the national (the Japan Nature Conservation Association in the Shiragami case) and the prefectural (the Hokkaido Nature Conservation Association and the Hokkaido Union of Nature Conservation Organizations in the Shiretoko case) organizations also had crucial influence. Furthermore, in the third phase when the anti-resort development movement spread all over Japan, local organizations played the leading parts and national or prefectural organizations had little influence on the movement.

For example, most of the present directors of the Hokkaido Nature Conservation Association mentioned above are activists in local nature conservation groups or naturalists. Only four of 20 are university professors (one of them is also an activist in local anti-resort development group). Actually, the association has already become an alliance of local nature conservation groups.

5.2 The other stream of environmental movement: Anti-pollution movement

Japan has gained the disgracing name of the "department store of pollutions". After World War II, Japan's drastic growth of economy brought about serious pollution problems in rivers, seashores and urban areas. Local residents protested against polluting companies and demanded that the companies admit failures and compensate them for pollution damages. While the environmental movement mainly means a civic movement for conservation of precious nature heritage in most of the developed countries in Europe and North America, it has mostly meant an anti-pollution movement in Japan (Iijima 1996). Since leadership of the movement in Japan has been taken by victims of serious pollution diseases, the movement tended to be very radical and conflicts between polluting companies and victims became very acute.

In the end of the 1960s, victims of major pollution matters started lawsuits in collaboration with non-suffering citizens and lawyers. These lawsuits raised a nationwide anti-pollution movement and brought the enactment of anti-pollution laws in the 1970s. After the culmination in the 1970s, the anti-pollution movement except for campaign against nuclear power stations lost momentum, while pollution problems decreased.

Compared with the nature conservation movement, the anti-pollution movement has taken the opposite course in popularization. While the former was organized by city dwellers and penetrated into rural areas, the latter was begun among victims usually living in local cities and towns, and involved intellectuals and non-suffering citizens in urban areas later. Furthermore, while a lot of lawsuits were raised in the anti-pollution movement, nature conservationists could not sue in conflicts until quite recently.

5.3 Characteristics of forestry conflicts in Japan

There have been many conflicts in forest areas in Japan similar to the European and the North American countries. However, there are also some characteristics unique to those of Japan. First, as Japan's bureaucracy is traditionally very strong, governments tend to ignore people's opinions or objections. Particularly in forestry administration, where foresters have a dominant power in decision-making process, foresters have had little incentive to hear public opinions and modify their policy on their own initiative. They have little experience in public participation. Therefore, they seem to be very nervous in nature conservation problems, and, what is worse, they sometimes seem to hate nature conservationists who criticize the closed decision-making system of the national forests.

Secondly, on the side of the nature conservation movement, nature conservationists have tended to be reluctant to change the government policy through political process, while they have tackled the urgent local problems. Most of the nature conservation organizations are concerned with local or prefectural matters. The organizations which are concerned with environmental matters occurring all over the country are very few; besides, they do not have enough influence on local organizations and little influence on political circles.

In the United States, for example, the large-scale nationwide environmental organizations such as Sierra Club, the Wilderness Society or National Wildlife Federation have hundreds of thousands of members. They have great influences on environmental policy making through lobbying. On the other hand, in Japan, the Birds Society of Japan which is the largest nature conservation organization in the country has only thirty thousand members, while the Nature Conservation Association of Japan playing a leadership role in the movement has little power as a lobby. This political weakness of the movement is one of the major reasons why Japan does not have public participation system in land management even now.

6. CONCLUSION

Criticism of forestry, especially to the national forests, culminated in the early 1970s. However, Japan had other peaks of criticism about forest development in the 1970s and 1980s, because, it has not established any effective system to introduce public opinion into the management of the national forests. The lack of public participation system is caused by both the traditionally undemocratic tendency of the administration and the political weakness of the nature conservation movement. However, the Shiretoko and Shiragami cases in the 1980s have had a strong influence on forest policy. Particularly, the Shiragami case might open the way to establish a public participation system in the national forest management.

REFERENCES

Hellström, E. and Reunala, A.1995. Forestry Conflicts from the 1950's to 1983 (European Forest Institute Research Report 3), the European Forest Institute, Joensuu, Finland, 92p.

Iijima, N. 1996. Experiences of environmental movement in Japan. In: Mita, M.et al. (eds.). Sociology of Environment and Ecosystem, Iwanami-shoten, Tokyo, pp.143-160. (in Japanese)*

Mizuno, K. 1994. History, present situation and problems of nature conservation movement. In: Okajima, N.(ed.). Making Symbiotic Relationship with Nature. Gyousei, Tokyo, pp.40-51. (in Japanese)*

National Union of Nature Conservation Organizations (ed.)1989. Encyclopedia of Nature Conservation, volume 1: Mountains and Forests. Ryokufu-syuppan, Tokyo, 382p.(in Japanese)*

Oyadomari, M. 1989. Dual Structure of Nature Conservation in Japan. In: Kurosaka, M. (ed.). Reflections on the Relationships between Man and His Environment, Shisaku-sya, Tokyo, pp.35-55. (in Japanese)

Sakai, K. 1975. Direction of nature conservation movement. In: Fukushima,Y. (ed.). Conservation of Nature. Jiji-tsushin-sya, Tokyo, pp.128-167. (in Japanese)*

Tsuchiya, T. 1994. Necessities of public participation in the national forest management planning in Japan. In: Tsuchiya, T. and Kakizawa, H. (eds.). Proceedings of the International Symposium on Public Participation and Environmental Conservation in Tokyo, Japan, November 7-9. Japan Society of Forest Planning Press, Tokyo, pp.41-51.

Yagi, Kenzo 1995. Protecting Nature in the North. Hokkaido University Press, Sapporo, Japan, 246p. (in Japanese)*

Yorimitsu,Ryozo 1984. Forest Resources in Japan. Toyo-keizai-shinpo-sya, Tokyo, 208p. (in Japanese)*

* English titles are translated tentatively from Japanese by the author of this paper.

FUTURE ACTIVITIES AND RESEARCH TOPICS FOR EFI

FUTURE ACTIVITIES AND RESEARCH TOPICS

J. N. R. Jeffers
University of Canterbury
UK

Birger Solberg
European Forest Institute
Finland

INTRODUCTION

Four work groups were convened at the end of the workshop to consider possible future activities of EFI in the field of conflict analysis and resolution and public participation in environmental conflict. In particular, two specific questions were addressed:

1. What are promising activities for EFI related to conflict resolution and public participation in land management?
2. What are promising research questions (topics, methodologies, theories) to be taken up by EFI in the field of conflict and public participation research?

The following note is a summary of the contributions of the four groups to this discussion, as reported at the end of the workshop.

FUTURE ACTIVITIES

There was a general feeling of the need for EFI to provide a centre for the communication of information about research in Europe on conflict resolution and public participation. This might be done, for example, by publication of a newsletter sent to interested individuals or institutions, through an e-mail contact group, or by means of the Internet. Information about national projects involving conflict resolution through public participation and about international comparisons of such projects might then provide an added stimulus to further research and application of appropriate methodologies.

Further workshops on this theme would also clearly be desirable, especially in improving the theoretical background for conflict resolution and public participation, the relevance of social theories about the meaning of power, and the development of comparative research which explores the experiences from different countries and

Birger Solberg and Saija Miina (eds.)
Conflict Management and Public Participation in Land Management
EFI Proceedings No.14, 1997

within different cultural contexts. The importance of the legal framework for public participation at different levels, and the effect of this framework on organisational structures was emphasised in the discussions, as was the influence of inter-organisational and cross-cultural co-operation and participation. It was stressed that only an institute like the EFI can address these issues effectively on a European scale.

In addition, the EFI might encourage development of educational programmes in conflict management and public participation within national forest institutions, perhaps by providing lists of recommended books and papers, or even of lecturers and consultants who may be able to offer guidance and expertise relevant to various countries.

On a wider scale, the ethical dimensions of conflict resolution and public participation in decision making perhaps need an international focus, particularly where comparison of national and cultural issues need to be highlighted. While these dimensions necessarily embrace the foundations of methodologies and philosophies, and the merging of qualitative and quantitative research, it is again only in institutions like EFI that the necessary breadth of vision and historical reality is likely to be found to facilitate such a focus.

Finally, EFI might monitor the development of research and application of conflict analysis and public participation in land management across Europe as a whole. While such monitoring raises difficult methodological questions of its own, there should, ideally, be a single focus for information about the historical development of this important innovation in land management, especially in relation to forest ecosystems. A data base of land uses in European counties might be an essential element of this monitoring.

RESEARCH QUESTIONS

The workshop itself touched upon a range of research methods which should perhaps be more widely known, including game theory, metagame theory, and graph analysis, as aids to the resolution of conflicts. Techniques of cognitive mapping, repertory grids, and textual analysis are widely employed in the resolution of conflict in other fields, more especially in psychological research. Risk analysis, which has become widely applied in many environmental issues, was hardly mentioned in the workshop, but perhaps deserves active consideration.

Similarly, there is a wide range of statistical questions that were hardly addressed during the workshop itself, but which need to be emphasised both in research and in any collection of data relevant to conflict resolution in land management. The design of experiments and surveys is a necessary precursor to any collection of data, but is often neglected, and a follow-up workshop on this important aspect of research and management is perhaps a priority. Analysis of data, and particularly the complex data which arise from mixtures of qualitative and information quantitative data, was mentioned several times in the discussions. There are many new techniques available for such analysis, and the EFI might usefully support workshops, perhaps in several European countries, to make them more widely known and to encourage their use.

The monitoring of the development of research and management in conflict analysis and public participation has been mentioned above as a possible activity for EFI. There remain many questions about how such monitoring can be done, and, specifically, about how the success or failure of the conflict management can be assessed and evaluated. An important part of that evaluation is the effect of the conflict and its resolution on the environment and its component ecosystems. Monitoring implies a sequence of measurements or assessments in time, but what is it that needs to be measured, and how can the cost of the assessment be justified? The importance of potential ecological surprise also needs to be taken into account.

Several different kinds of models were mentioned or discussed during the workshop, including soft systems modelling, systems analysis, stochastic models, game theory, and meta-game theory. A useful research activity that might be sponsored by EFI is a review of the various kinds of models that are available for use in this field of conflict analysis and public participation. A comparison of the different models, emphasising their strengths and weaknesses, and providing references to their application would greatly help workers in many countries to become more aware of the available techniques and possibilities.

Finally, it was felt that bridge building between managers and research scientists across the wide range of disciplines relevant to forestry remains an important task for the EFI. In part, this communication of ideas can be facilitated by publications, but this workshop has demonstrated that there is no real substitute for bringing managers and scientists together in a suitable environment where the can be a frank exchange of ideas, both formally and informally.

LIST OF PARTICIPANTS

Conflict Management and Public PArticipation in land Management
16 - 19 June 1996, Joensuu, Finland

SPEAKERS

Prof. Dr. Steven E. Daniels
Oregon State University
Department of Forest Resources
Peavy Hall, Oregon State University
Corvallis, OR 97331
USA
Fax. +1 541 737 3049
Email danielss@ccmail.orst.edu

Mr. Christopher Elliott
WWF International
Av. du Mont Blanc
1196 Gland
Switzerland
Tel. +41 22 364 9521
Fax. +41 22 364 06 40

Prof. Dr. William Fleischman
University of Minnesota
Department of Sociology/Anthropology
288 Cina Hall, 10 University Drive
Duluth, MN 55812-2496
USA
Tel. +1 218 726 7551
Fax. +1 218 726 6386
Email wfleisch@d.umn.edu

Ms. Sirkka Hautojärvi
Ministry of Environment
PL 399
00121 Helsinki
Finland
Fax. +358 9 199 193 23

Ms. Eeva Hellström
Suomen Metsäyhdistys
Salomonkatu 17 A
00100 Helsinki
Finland
Tel. +358 9 694 0508
Fax. +358 9 693 3466
Email eeva.hellstrom@smy.fi

Prof. Dr. John N. R. Jeffers
University of Canterbury
Applied Statistics Research Unit
Canterbury, Kent CT2 7NF
United Kingdom
Tel. +44 1539 734 376
Fax. +44 1539 734 378
Email jnrj@uk.ac.nerc-merlewood.uarc

Mr. Teppo Loikkanen
Finnish Forest and Park Service
99400 Enontekiö
Finland
Tel. +358 16 533 070
Fax. +358 16 533 072
Email teppo.loikkanen@metsa.fi

Mr. Jari Paldanius
University of Helsinki
Maankäytön ekonomian laitos
PL 27
00014 Helsingin yliopisto
Finland
Tel. +358 9 708 5068
Fax. +358 9 708 5096
Email paldanius@ladybird.helsinki.fi

Birger Solberg and Saija Miina (eds.)
Conflict Management and Public Participation in Land Management
EFI Proceedings No.14, 1997

Dr. Jari Parviainen
Botschaft von Finnland
Botschaftsrat
Friesdorfer Str. 1
53173 Bonn
Germany
Tel. +49 228 382 9859
Fax. +49 228 382 9851
Email jari.parviainen@metla.fi

Dr. Jerome Delli Priscoli
IAP3
1714 N. Bryan St.
Arlington, VA 22201
USA
Tel. +1 703 524 6632
Fax. +1 703 524 6920
Email priscoli@erols.com

Dr. Aarne Reunala
Finnish Forest Research Institute
Unioninkatu 40 A
00170 Helsinki
Finland
Tel. +358 9 857 05 333
Fax. +358 9 625 308

Prof. Dr. Gregg Walker
Oregon State University
Department of Speech Communication
Stephard Hall 104, Oregon State University
Corvallis, OR 97331-6199
USA
Tel. +1 541 737 5397
Fax. +1 541 737 4443
Email walkerg@cla.orst.edu

Mr. Pauli Wallenius
Finnish Forest and Park Service
P.O. Box 94
01301 Vantaa
Finland
Tel. +358 9 85 784 475
Fax. +358 9 85 784 500
Email pauliwa@kuo.metsa.fi

PARTICIPANTS

Ms. Marketta Ahtiainen
Regional Env. Centre of North Karelia
P.O.Box 69
80101 Joensuu
Finland
Tel. +358 13 141 2705
Fax. +358 13 123 622
Email marketta.ahtiainen@yk.fi

Ms. Pippa Bird
Natural Resources Institute
Chatnam Maritime
ME4 4TB Kent
United Kingdom
Tel. +44 163 488 3940
Fax. +44 163 488 3959
Email pippa.bird@nri.org

Dr. Henk W.J. Boerwinkel
Wageningen Agricultural University
Department of Forestry
P.O. Box 342
6700 AN Wageningen
The Netherlands
Tel. +31 317 482 120
Fax. +31 317 482 166
Email henk.boerwinkel@recr.rpv.wau.nl

Ms. Tove Enggrob Boon
Royal Veterinary & Agricultural University
Unit of Forestry
Thorvaldsensvej 57
1871 Fredriksberg C
Denmark
Tel. +45 31 528 2248
Fax. +45 31 357 833
Email tove.boon@flec.kvl.dk

Mr. Anders Christiansen
The Danish Outdoor Council
Olof Palmes Gade 10
2100 Copenhagen
Denmark
Tel. +45 31-423 222
Fax. +45-31-423 478

Ms. Christine Egli
University of Zurich
Geographisces Institut
Winterthurerstrasse 190
8057 Zürich
Switzerland
Tel. +41-1-257 5118
Fax. +41-1-362 5227
Email cegli@geo.unizh.ch

Mr. Felix M. Eslava
UPLB College of Forestry
Laguna 4031
Philippines
Tel. +63 94 536 3340
Fax. +63 94 536 3206

Mr. Piotr Grygier
Regional Directorate of State Forests at Poznan
ul. Gajowa 10
60-815 Poznan
Poland
Tel. +48 61 474 818
Fax. +48 61 472 869

Dr. Cantürk Gümüs
Black Sea Technical University
Faculty of Forestry
KTÜ Orman Fakültesi
61080 Trabzon
Turkey
Tel. +90 462 325 3223
Fax. +90 462 325 7499

Mr. Erkki Hallman
Finnish Forest and Park Service
PL 94
01301 Vantaa
Finland
Tel. +358 9 85 784 472
Fax. +358 9 85 784 500

Ms. Kerttu Härkönen
Finnish Forest and Park Service
PL 94
01301 Vantaa
Finland
Tel. +358 9 85 784 471
Fax. +358 9 85 784 500

Mr. Petri Heinonen
Finnish Forest and Park Service
P.O. Box 94
01301 Vantaa
Finland
Tel. +358 9 85 784 442
Fax. +358 9 85 784 451
Email petri.heinonen@metsa.fi

Mr. Veikko Hiltunen
Finnish Forest and Park Service
Urho Kekkosenkatu 4
87100 Kajaani
Finland
Tel. +358 8 613 3273
Fax. +358 8 626 739

Mr. Juha Hiltunen
Pohjois-Savo Forestry Centre
PL 1091
70101 Kuopio
Finland
Tel. +358 17 262 5444
Fax. +358 17 262 5429

Dr. Ian Hunter
European Forest Institute
Torikatu 34
80100 Joensuu
Finland
Tel. +358 13 252 0212
Fax. +358 13 124 393
Email ian.hunter@efi.joensuu.fi

Dr. Pentti Hyttinen
Forestry Center of North Karelia
PL 17, Siltakatu 20 B
80101 Joensuu
Finland
Tel. +358 13 253 220
Fax. +358 13 253 2211

Ms. Marjatta Hytönen
Finnish Forest Research Institute
Unionikatu 40 A
00170 Helsinki
Finland
Tel. +358 9 857 057 44
Fax. +358 9 857 057 17
Email marjatta.hytonen@metla.fi

Ms. Silja Hyvärinen
City of Helsinki
Kasarminkatu 21 (PL 164)
00131 Helsinki
Finland
Tel. +358 9 166 27 89
Fax. +358 9 166 28 75

Ms. Mirja Jääskeläinen
North Karelia Polytechnic
Joensuu Forestry College
Väisälänkatu 4
80160 Joensuu
Finland
Tel. +358 13 260 6909
Fax. +358 13 260 6901
Email mirja.jaaskelainenm@ncp.fi

Ms. Liisa Kajala
Finnish Forest and Park Service
99400 Enontekiö
Finland
Tel. +358 16 533 070
Fax. +358 16 533 072
Email liisa.kajala@metsa.fi

Mr. Cecil Konijnendijk
Wageningen Agricultural University
Department of Forestry
P. O. Box 342
6700 AH Wageningen
The Netherlands
Tel. +31 317 485 115
Fax. +31 317 483 542
Email
Cecil.Konijnendijk@BHHK.BOSB.W14.NL

Dr. Antti Leskinen
Diskurssi Oy
PL 522
00101 Helsinki
Finland
Tel. +358 9 774 1865
Fax. +358 9 774 1799

Mr. Andres Lietha
University of Zurich
Geographisches Institut
Winterthurerstrasse 190
8057 Zürich
Switzerland
Tel. +411 257 5118
Fax. +411 362 5227
Email ravage@access.ch

Mr. Chijien Lin
European Forest Institute
Torikatu 34
80100 Joensuu
Finland
Tel. +358 13 252 020
Fax. +358 13 124 393
Email chijien.lin@efi.joensuu.fi

Mr. Hannu Luotonen
Regional Environment Centre of North Karelia
P.O. Box 69
80101 Joensuu
Finland
Tel. +358 13 141 2704
Fax. +358 13 123 622

Mr. Mika Marttunen
Finnish Environment Agency
P.O. Box 140
00251 Helsinki
Finland
Tel. +358 9 403 005 16
Fax. +358 9 403 005 90
Email mika.marttunen@vyh.fi

Ms. Renate Mayer
University of Natural Resources
Institute of Socioeconomics
Gregor-Mendel-Str. 33
1180 Vienna
Austria
Tel. +43 1 47654 4404
Fax. +43 1 47654 4407

Mr. John McLoughlin
COILLTE (Irish Forestry Board)
Leeson Lane
Dublin 2
Ireland
Tel. +353 1 661 5666
Fax. +353 1 678 9527
Email mcloughln_jf@coillte.ie

Ms. Saija Miina
European Forest Institute
Torikatu 34
80100 Joensuu
Finland
Tel. +358 13 252 0224
Fax. +358 13 124 393
Email saija.miina@efi.joensuu.fi

Mr. Paul Mitchell-Banks
Central Coast Consulting
4439 West 7th Avenue
Vancouver, B. C.
V6R 1X1, Canada
Tel. +1 604 224 1860
Fax. +1 604 224 1860
Email pmbanks@unixg.ubc.ca

Mr. Eero Muinonen
University of Joensuu
Faculty of Forestry
P.O. Box 111
80101 Joensuu
Finland
Tel. +358 13 251 3628
Fax. +358 13 251 3590
Email eero.muinonen@forest.joensuu.fi

Mr. Mikael Norén
National Board of Forestry
Skogstyrelsen
55183 Jönkoping
Sweden
Tel. +46 36 155 711
Fax. +46 36 166 170
Email mikael.noren@svo.se

Mr. Andreas Ottitsch
University of Natural Resources
Institute of Forest Socio-Economics
Gregor-Mendel-Str. 33
1180 Vienna
Austria
Tel. +43 1 47654 4404
Fax. +43 1 47654 4407
Email ottitsch@hp02.boku.ac.at

Mr. Ahti Paavonen
Finnish Forest and Park Service
Länsi-Suomen alue, Parkanon yksikkö
PL 38
39701 Parkano
Finland
Tel. +358 3 448 1821
Fax. +358 3 448 1642

Mr. Matti Parikka
Finnish Forest and Park Service
Ståhlberginkatu 24
85800 Haapajärvi
Finland
Tel. +358 8 772 5763
Fax. +358 8 772 5755

Mr. Kari Pelkonen
Finnish Forest and Park Service
Akselinkatu 8
57130 Savonlinna
Finland
Tel. +358 15 576 810
Email kari.pelkonen@metsa.fi

Mr. Jouni Pykäläinen
University of Joensuu
Faculty of Forestry
P.O.Box 111
80101 Joensuu
Finland
Tel. +358 13 251 4422
Fax. +358 13 251 3590
Email jpykalai@forest.joensuu.fi

Mr. Juhani Pyykkönen
UPM-Kymmene
PL 186
87101 Kajaani
Finland
Tel. +358 8 193 432

Dr. Risto Päivinen
European Forest Institute
Torikatu 34
80100 Joensuu
Finland
Tel. +358 13 252 020
Fax. +358 13 124 393
Email risto.päivinen@efi.joensuu.fi

Mr. Ari Rautio
Finnish Forest and Park Service
PL 36
40101 Jyväskylä
Finland
Tel. +358 14 654 111
Fax. +358 14 654 152
Email ari.rautio@metsa.fi

Dr. Kauko Salo
Finnish Forest Research Institute
Joensuu Research Station
P.O. Box 68
80101 Joensuu
Finland
Tel. 358 13 251 4034
Fax. 358 13 251 4111

Ms. Wendy Sanders
Lake States Forestry Alliance, Inc.
P.O. Box 722
Hayward, WI 54843
USA
Tel. +1 715 634 2006
Fax. +1 715 634 5724
Email 76367.47@compuserve.com

Mr. Jukka Santalahti
Finnish Forest and Park Service
Hämeenlinnan hoitoalue
PL 147
13101 Hämeenlinna
Finland
Tel. +358 3 612 5663
Fax. +358 3 616 5104
Email jukka.santalahti@metsa.fi

Ms. Annika Selander
Forestry Polytechnic of Joensuu
Väisälänkatu 4
80170 Joensuu
Finland
Tel. +358 13 162 31
Fax. +358 13 162 3221

Dr. Roger Sidaway
4 Church Hill Place
Edinburgh, EH10 4BD, Scotland
United Kingdom
Tel. +44 131 447 9975
Fax. +44 131 452 8267

Dr. Heikki Simola
University of Joensuu, Karelian Institute
Section of Ecology
P.O. Box 111
80101 Joensuu
Finland

Prof. Dr. Birger Solberg
ACCN/NISK
P.O.Box 5044
1432 Ås
Norway
Tel. +47 64 948 928
Fax. +47 64 948 890
Email birger.solberg@nisk.no

Dr. Songkram Thammincha
University of Kasetsart
Faculty of Forestry
Kasetsart
Bangkok 10900
Thailand
Tel. +662 579 0170
Fax. +662 561 4246

Mr. Ilpo Tikkanen
Helsingin Yliopisto
Metsäekonomian Laitos
PL 24
00014 Helsinki
Finland
Tel. +358 9 191 7734
Fax. +358 9 191 7729

Mr. Jukka Tikkanen
Oulun metsäoppilaitos
90650 Oulu
Finland
Tel. +358 8 312 6911
Fax. +358 8 531 5512
Email jukka.tikkanen@osakk.fi

Dr. Toshiyuki Tsuchiya
University of Iwate
Dept.of Agronomy and Forestry
3-18-8, Ueda, Morioka-shi
Iwate-ken, 020
Japan
Tel. +81 196 21 6129
Fax. +81 196 21 6129
Email toshit@msv.cc.iwate-u.ac.jp

Mr. Kyösti Tuhkalainen
Finnish Forest and Park Service
Lieksan hoitoalue
Urheilukatu 3 A
81700 Lieksa
Finland
Tel. +358 13 520 56 20
Fax. +358 13 520 5601
Email kyosti.tuhkalainen@metsa.fi

Prof. Juri Tunytsa
International Institute
Ass. of Regional Ecological Problems
ul. Doroshenko 41
290000 Lvov
Ukraina
Tel. +380 332 352 411
Fax. +380 322 271 045/352 269

Mr. Taras Tunytsa
The Forestry University
Pushkinskaya 110
Lvov
Ukraina
Tel. +332 352 411
Fax. +380 322 271 045

Mr. Juha-Pekka Turunen
Diskurssi Oy
P.O.Box 522
00101 Helsinki
Finland
Tel. +358 9 774 1865
Fax. +358 9 774 1799

Mr. Tuomo Vehmas
Finnish Forest and Park Service
Länsi-Suomen alue, Karstulan yksikkö
PL 15
43501 Karstula
Finland
Tel. +358 44 462 651
Fax. +358 44 462 597

Ms. Taina Veltheim
Ministry of Agriculture and Forestry
P.O.Box 232
00171 Helsinki
Finland
Tel. +358 9 160 2404
Fax. +358 9 160 2400
Email
taina.veltheim@mmm.agrifin.mailnet.fi

Ms. Kristiina Vuopala
Finnish Forestry Association
Salomonkatu 17 B
00100 Helsinki
Finland
Tel. +358 9 694 0300
Fax. +358 9 693 3466

Mr. Martin Welp
Technical University of Berlin
Franklinstraße 28/29, FR 2-7
10587 Berlin
Germany
Tel. +49 30 3142 1412
Fax. +49 30 3147 3517
Email welp@cs.tu-berlin.de

Mr. Stanislaw Wypych
Regional Directorate of State Forests at Katowice
ul. Huberta 43/45
Katowice 40-952
Poland
Tel. +48 32 516 139
Fax. +48 32 515 739

PHOTOS

Photo 1. Keynote speakers and a part of the sculpture "Alkukivet" (Primeval stones) by Kain Tapper. The speakers from left to right: Gregg Walker, John Jeffers, Pauki Wallenius, Steven Daniels, Jari Parviainen, Jerome Delli Priscoli, Bill Fleischman, Eeva Hellström and Chris Elliot.

Photo 2. A local forest worker describes the harvesting methods used by the Finnish Forest and Park Service.

Photo 3. Shooting the rapids in Ruunaa...

Photo 4. and afterwards, a welcomed break by the camp fire.

Photo 5. The participants of the summer school enjoy a moment of peace and quiet at the Koli National Park.

Photo 6. Another successful summer school session is over and the participants seem quite satisfied with their work under the guidance of Bill Fleischman (on the far left).

E F I

Publications

EFI's research results are currently published in three publication series: Research Reports, Working Papers and Proceedings.

Research Reports

are peer-reviewed reports of final results published either by commercial publishers or by EFI. Research Reports are peer-reviewed by three external reviewers chosen by SAB (EFI's Scientific Advisory Board). Research Reports No. 2, 3 and 4 are available from the European Forest Institute. Price 25 ECU. Research Reports No. 1 and 5 are available only from the publisher.

Working Papers

are interim reports. Working papers are peer-reviewed by three external reviewers chosen by SAB. EFI Working Papers are available free of charge from the European Forest Institute.

Proceedings

are collections of papers presented at seminars, conferences or workshops organised or co-organised by EFI. Proceedings are usually not externally reviewed or they receive only a limited review. EFI Proceedings are available from the European Forest Institute. Price: 15 ECU

EFI News

is published twice a year and is now available also on EFI homepage. In 1996 EFI NEWS were published in May and October and sent to approximately 7000 subscribers.

European Forest Institute
Torikatu 34
FIN-80100 Joensuu
Finland

Phone: +358 13 252 020
Fax +358 13 124 393
Email: efisec@efi.joensuu.fi
WWW: http://www.efi.joensuu.fi/

Research Reports

No 1. **Forest Resources in Europe**. Author: Kullervo Kuusela. Cambridge University Press, Cambridge, UK 1994. ISBN 0 521 48076, hardback. Price GBP 29.95.

Copies are available from: Customer Service Department Cambridge University Press, The Edinburgh Building, Cambridge CB2 1BR. Orders can also be telephoned on +44 223 325 970 or fax +44 223 325 959.

No 2. **Forests and the Global Carbon Cycle in the Past, Present and Future.** Author: Melvin Cannell. European Forest Institute, Joensuu, Finland, 1995. ISBN 952-9844-06-9. 66 p.

No 3. **Forestry Conflicts from the 1950's to 1983** - A review of a Comparative Study between USA, Germany, France, Sweden, Finland and Norway. Authors: Eeva Hellström and Aarne Reunala. European Forest Institute, Joensuu, Finland, 1995. ISBN 952-9844-07-7. 92 p.

No 4. **Patterns and Policies of Research Funding in the Forest Sector – a Comparative Study between Finland and Norway**. Author: Eeva Hellström. European Forest Institute, Joensuu, Finland, 1995. ISBN 952-9844-03-3. 189 p.

No 5. **Growth Trends in European Forests.** H. Spiecker, M. Köhl, K. Mielikäinen and J.P. Skovsgaard (eds.). Springer-Verlag, Heidelberg, Germany, 1996. ISBN 3-540-61460-5. 372 p.

Copies are available from: Springer Verlag, Postfach 311340, D-10643 Berlin, Germany. Fax: +49 30 827 87 301. Email: orders@springer.de.

No 6. **Long-term Trends and Prospects in World Supply and Demand for Wood and Implications for Sustainable Forest Management**. B. Solberg (ed.). European Forest Institute, Joensuu, Finland, 1996. ISBN 952-9844-29-8. 150 p.

Research Reports No. 2, 3, 4 and 6 are available from the European Forest Institute. Price 25 ECU. Research Reports No. 1 and 5 are available only from the publisher.

Working Papers

No 1. **Policy Implications of the UN-ECE/FAO Forest Resource Assessment (temperate zone)**. Authors: Ervedo Giordano, Peter Glück, Fred Hummel, Horst Kurth and Kullervo Kuusela. European Forest Institute, Joensuu, Finland, 1993. ISBN 952-9844-00-X. 31 p.

No 2. **State-of-the-art in the Field of Forest Sector Carbon Balance Studies - with Reference to the European Situation**. Author: Gert-Jan Nabuurs. European Forest Institute, Joensuu, Finland, 1994. ISBN 952-9844-01-8. 87 p.

No 3. **A Review of Approaches to Forestry Research on Structure, Succession and Biodiversity of Undisturbed and Semi-natural Forests and Woodlands in Europe**. Authors: Andreas Schuck, Jari Parviainen and Winfried Bücking. European Forest Institute, Joensuu, Finland, 1994. ISBN 952-9844-02-6. 62 p.

No 4. **Growth Trends of European Forests - Has Site Productivity Changed?** Authors: Heinrich Spiecker, Kari Mielikäinen, Michael Köhl and Hans Untheim. European Forest Institute, Joensuu, Finland, 1994. ISBN 952-9844-03-4. 68 p. (out of print).

No 5. **Survey of Forest Policy Research in Europe.** Ongoing projects 1993/1994. Authors: Birger Solberg and Pentti Hyttinen. European Forest Institute, Joensuu, Finland February 1995. ISBN 952-9844-04-2. 144 p.

No 6. **European Timber Trends: Issues and Priorities for Further Research.** Author: David. J. Brooks. European Forest Institute, Joensuu, Finland, 1995. ISBN 952-9844-17-4. 31 p.

No 7. **Environmental Forestry Conflicts, Forest Policies and the Use of Forest Resources** - Recent Developments in USA, Germany, France, Sweden, Finland and Norway. Author: Eeva Hellström. European Forest Institute, Joensuu, Finland, 1996. ISBN 952-9844-18-2. 72p.

No 8. **The International Collection and Dissemination of Forest Sector Information in Europe**. Author: T.J. Peck. European Forest Institute, Joensuu, Finland, 1996. ISBN 952-9844-19-0. 27 p.

No 9. **The European Forest Institute's Databases and Information Services**. Author: Ivo Kupka. European Forest Institute, Joensuu, Finland, 1996. ISBN 952-9844-22-0. 59 p.

No 10. **Large Scale Forestry Scenario Models** - a Compilation and Review. Authors: Gert-Jan Nabuurs and Risto Päivinen. European Forest Institute, Joensuu, Finland, 1996. ISBN 952-9844-12-3. 174 p.

No 11. **Environmental Forest Conflicts in Germany** - From National to International Concern. Author: Eeva Hellström. European Forest Institute, Joensuu, Finland, 1996. ISBN 952-9844-25-5. 62 p.

EFI Working Papers are available free of charge from the European Forest Institute.

Proceedings

No 1. **Integrating Environmental Values into Forest Planning**. Pentti Hyttinen and Anu Williams (eds). European Forest Institute, Joensuu, Finland, 1994. ISBN 952-9844-05-0. 62 p.

No 2. **Forest Policy Analysis - Methodological and Empirical Aspects**. Birger Solberg and Päivi Pelli (eds). European Forest Institute, Joensuu, Finland, 1995. ISBN 952-9844-09-3. 278 p.

No 3. **Environmental Impacts of Forestry and Forest Industry**. Birger Solberg and Leena Roihuvuo (eds). Proceedings of an International Seminar, Joensuu, Finland, 5-8 September 1994. ISBN 952-9844-10-7. 112 p.

No 4. **Multiple Use and Environmental Values in Forest Planning.** Pentti Hyttinen, Anu Kähkönen and Päivi Pelli (eds). Proceedings of an International Summer School, Tohmajärvi, Finland 5-10 June 1995. ISBN 952-9844-11-5. 290 p.

No 5. **Large-Scale Forestry Scenario Models: Experiences and Requirements.** Risto Päivinen, Leena Roihuvuo and Markku Siitonen (eds). Proceedings of an International Seminar and Summer School, Joensuu, Finland, 15-22 June 1995. ISBN 952-9844-13-1. 318 p.

No. 6 **Assessment of Biodiversity for Improved Forest Management.** Peter Bachmann, Kullervo Kuusela and Janne Uuttera (eds). Proceedings of an International Workshop, Koli, Finland, 12-17 June 1995. ISBN 952-9844-14-X. 192 p.

No. 7 **New Thrusts in Forest Inventory.** Risto Päivinen, Jerry Vanclay and Saija Miina (eds). Proceedings of the Subject Group S4.02-00 'Forest Resource Inventory and Monitoring' and Subject Group S4.12-00 'Remote Sensing Technology'. IUFRO XX World Congress, Tampere, Finland, 6-12 August 1995. ISBN 952-9844-15-8. 292 p.

No. 8 **Life-Cycle Analysis – a Challenge for Forestry and Forest Industry.** Arno Frühwald and Birger Solberg (eds). Proceedings of an International Workshop, Hamburg, Germany, 3-5 May 1995. ISBN 952-9844-16-6. 278 p.

No 9. **Regional Development Based on Forest Resources – Theories and Practices.** Pentti Hyttinen, Ari Mononen and Päivi Pelli (eds). Proceedings of the International Seminar, Joensuu, Finland 14-15 December 1995. ISBN 952-9844-20-4. 265 p.

No 10. **Internet Applications and Electronic Information Resources in Forestry and Environmental Sciences.** Hannu Saarenmaa and Alois Kempf (eds.). Proceedings of the International Workshop, Joensuu, Finland, 1-5 August 1995. ISBN 952-9844-23-9. 152 p.

No 11. **Forest Industries Towards the Third Millennium – Economic and Environmental Challenges.** Birger Solberg, Matti Palo and Pentti Hyttinen (eds.). Proceedings of the International Seminar Joensuu, Finland, 18-19 March 1996. ISBN 952-9844-24-7. 88 p.

No. 12. **Review on Forest Policy Issues and Policy Processes.** Ilpo Tikkanen, Peter Glück and Birger Solberg (eds.) Proceedings of the International Summer School on Forest Policy Analysis, Joensuu, Finland, 2-8 June 1996. ISBN 952-9844-26-3 168p.

No 13. **Integrating Environmental Values into Forest Planning - Baltic and nordic Perspectives.** Pentti Hyttinen and Artur Nilson (eds.). Proceedings of the Nordic-Baltic Research Course, Räpina, Estonia, 27 June - 2 July 1996. ISBN 952-9844-27-1. 247 p.

No 15. **Forestry in the Context of Rural Development: Future Research Needs.** Peter Glück and Gerhard Weiss (eds.). Proceedings of the COST seminar 'Forestry in the Context of Rural Development', Vienna, Austria, 15-17 April 1996. ISBN 952-9844-30-1. 173 p.

EFI Proceedings are available from the European Forest Institute. Price: 15 ECU

Joint publications

*** Proceedings of the International Workshop 'Designing a System of Nomenclature for European Forest Mapping.'** European Forest Institute, Joensuu, Finland, 13-15 June 1994. Kennedy, P. J., Päivinen, R. and Roihuvuo, L. (eds). European Commission Report EUR16113 EN. 455 p.

*** Definition of a System of Nomenclature for Mapping European Forests and for Compiling a Pan-European Forest Information System.** Final Project Report. Suthors: Michael Köhl and Risto Päivinen. European Commission Report EUR16416EN, 1996. 348 p.

*** Remote Sensing and Computer Technology for Natural Resource Assessment.** Proceedings of the Subject Group S4.02-00 'Forest Resources Inventory' and Subject Group S4.12-00 'Remote Sensing Technology', at the IUFRO XX World Congress, 6-12 August 1995, Tampere, Finland. Jussi Saramäki, Barbara Koch and Gyde Lund. (eds). The University of Joensuu, Faculty of Forestry Research Notes 48, 1996. 271 p.

** Not available from EFI*

I would like to order the following EFI publications

Research Report Number(s)	____	____ copies (à 25 ECU)
Working Paper Number(s)	____	____ copies (free)
Proceedings Number(s)	____	____ copies (à 15 ECU)
Total	____	____ ECU

Postage will be added to the total

European Forest Institute
Torikatu 34
FIN-80100, Joensuu
Finland

Tel +358 13 252 020
Fax +358 13 124 393
Email: efisec@efi.joensuu.fi
WWW: http://www.efi.joensuu.fi/

Name _____

Address _____

Postcode _____ Country _____

I wish to pay by credit card

(VISA/MASTERCARD / EUROCARD)

☐ I wish to pay with cash on delivery (COD).

Card Number: _____

Expiry Date _____

☐ I wish to pay by bank transfer. Please invoice me

Signature: _____