# The Virtue of Conflict in Local Resource Governance: An Institutional Approach to the Study of Heterogeneous Preferences

Frank van Laerhoven[1] and Krister Andersson[2]

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## Abstract

In this paper, we argue that the conventional study of conflict in common-pool resource (CPR) governance settings should look for more explicit ways to incorporate rules and rule-making procedures into their models. New Institutionalism has shown that individual preferences cannot be amalgamated into a coherent group preference in any simple, straightforward fashion. Efforts to articulate group preferences depend on the institutions chosen to reach compromise between individual opinions; these institutional arrangements can always be questioned and challenged. Rather than claiming that conflict must be solved at all costs, we argue that conflict, under some circumstances, may be necessary for the eventual emergence of a more stable set of institutions that are capable of managing conflicts and differences in opinion in a ways that are non-destructive for CPR use. We propose a research agenda that includes a focus on institutions and their role in both causing *and* mitigating conflict.

[1] Corresponding author. Research Assistant, Workshop in Political Theory and Policy Analysis, Indiana University, Bloomington Indiana. Email: fvanlaer@indiana.edu
[2] Assistant Professor, Department of Political Science and Environmental Studies, University of Colorado, Boulder, Colorado

# 1 Introduction

Both national governments and organizations of international cooperation perceive decentralization as a promising strategy to improve the effectiveness and efficiency of conventional systems of public administration, especially in developing countries. The devolution of decision-making to policy arenas other than the central government not only seem to have a general appeal, (Burki, Perry, & Dillinger, 1999; Maro, 1987; Oakerson, 1999; V. Ostrom, Tiebout, & Warren, 1961; World Bank, 1988), it has become an intensely studied theme for scholars interested in natural resource management (Andersson, 2000; 2003; 2004; Andersson, Gibson, & Lehoucq, 2004; Andersson & Van Laerhoven, 2007; Larson, 2003; 2004; 2004; Pacheco, 2004; Ribot, 1995; 1998; 1999a; 1999b; 2002; 2003).

This paper deals with the decentralization of governance arrangements affecting forests that have the characteristics of a local common pool resource (CPR)[3]. Especially, it looks at conflicts within groups of resource users in decentralized forest self-governance arrangements. Conflict is an important research topic, since conflict between users in decentralized management regimes can be argued to diminish the likelihood of success of such systems. Disagreement and subsequent conflict between individual members and sub-groups within a group of common pool resource users is routinely reported in the literature (E. Ostrom, 1990; Vedeld, 2000; Wade, 1988). However, at the same time we observe that conflictive CPR user groups do not necessarily fail to manage their resource successfully (Gibson, McKean, & Ostrom, 2000; E. Ostrom, 1990). This seems counter-intuitive, since CPR management requires collective action, which can be argued to be seriously hindered by disagreement and conflict (Olson, 1965).

Conventionally, scholars and practitioners seem to uncouple conflict and decentralized local resource governance, arguing that whatever disagreement that may exist needs to be settled prior to agreement about the institutional arrangements for natural resource management There is a tendency to view "conflict" and "CPR governance" as only sequentially related: If there is a conflict, solve it, and get on with

[3] A common pool resource is a resource from which it is difficult to exclude or limit users once the resource is provided (contrary to a private good, or a toll good). Furthermore, one person's consumption of resource units removes those units from what is available to others (contrary to a public good, or a toll good) (E. Ostrom, 2005).

the governance of the commons This sequence is supposedly repeated when new conflicts arise. The resolution of conflict is often tied to third party interventions. Popular tools include "stakeholder consultation" to come to a consensus, and "zoning" to physically separate different resource uses (and users) from one another. The conventional premise in studies of conflict in CPR governance seems to be that conflict can and must be solved, or else the good governance of the resources is in jeopardy.

New Institutionalism, on the contrary, is based on the premise that in a choice environment consisting of multiple individuals with multiple preferences, conflict *cannot* be solved; at least, not without resorting to a rather arbitrary rule-making procedure (the outcome of alternative rule-making procedures can be dramatically different, as we will show). This literature holds that institutional arrangement selected to reach a consensus or "group preference" is likely to be unstable and will eventually be questioned by some (and is therefore a potential reason for conflict in itself). This particular line of inquiry has chosen the intimate relation between conflict and public choice as their primary field of study (Arrow, 1951; Black, 1958; Buchanan & Tullock, 1965; Downs, 1957; Knight, 1992). In a centralized form of CPR governance, a higher authority imposes the governance rules. When decision-making is decentralized, resource users themselves need to device rules that reflect community preferences. From a rational choice perspective, formal theory predicts that it is impossible to translate multiple individual preference orderings (especially when combined with multi-dimensional issues) into a coherent and overall accepted group preference. This prediction, which is based on Arrow's Impossibility Theorem, is not always congruent with empirical observations. Apart from questioning "rational choice" as the only, or most appropriate behavioral postulate in a setting of joint decision-making (Axelrod, 1997; Lazer & Friedman, 2006; Simon, 1955; 1957), New Institutionalism has dedicated much effort to studying "institutions" -or rules and rule-making procedures- in order to shed light on the paradox of the Impossibility Theorem.

We propose a framework that allows incorporating the lessons learned in New Institutionalism as applied to more conventional choice environments in political science (voting, agenda setting, elections, etc.) into the study of conflict in the context of decentralized natural resource management. In this paper we make the argument that in

the articulation of disagreement and the subsequent potential of conflict within resource user groups is as much an inherent component of decentralized common-pool resource governance, as well as it is a factor that seriously complicates the organization of the collective action that is necessary to prevent over-exploitation of a commonly managed resource. Conflict may be indispensable and unwanted at the same time. In our study we explore how forest user groups deal with this apparent paradox. The question we set out to answer is how can successful CPR management regimes be argued to have dealt with the apparent paradox of articulation of conflicting interests being at the same time a prerequisite for making and mending institutions for collective actions, *and* prohibitive to collective action itself? We look to solve the puzzle of how to deal with conflict and still being successful in the sustainable management of a small-scale self-governed common pool resource, by focusing on the institutional arrangements surrounding rule making and adaptation (E. Ostrom, 2005).

The rest of the paper is outlined as follows. First, we discuss the literature dealing with conflict in local, small to medium-sized CPRs. Then we discuss the New Institutional literature on how to amalgamate individual preferences into coherent group preferences. Then we propose a framework to study conflict in CPR governance. Then, we provide some preliminary empirical findings to illustrate the usefulness of such an approach. In a conclusion we lay out a research agenda for the study of conflict in community forestry.

# 2 Conflict & Natural Resource Governance

The literature on conflict management and resolution seems to agree that the source of conflict is to some extent related to the fact that those involved in natural resource management represent positions, values and interest that are not necessarily compatible, and hence potentially conflictive (Anderson, Clément, & Crowder, 1999). Resource users may differ in economic or political assets, information or physical relationships. Communities are not to be viewed as homogenous units in the study of local resource governance (Agrawal & Gibson, 1999).

For example, in irrigation systems the interests of tail-enders differs from that of head-enders (Gibson et al., 2000; E. Ostrom, 1992; E. Ostrom & Gardner, 1993); in

agricultural systems cattle ranching is potentially conflictive with crop cultivation (Nygren, 2000; Wade, 1988); in water basins city size and location may influence the potential intensity and relevance of opposing interests (V. Ostrom, 1999 (reprinted)); in watersheds the classic conflicts stem from the difference between up- and downstream areas (Lubell, Schneider, Scholtz, & Mete, 2002; Ravnborg & del Pilar Guerrero, 1999; Sneddon, 2002), or from the different preferences of residential and agricultural water users (Bardhan & Dayton-Johnson, 2001); in fisheries parallel modes of access and exploitation bear the potential of conflict (Degen, Van Acker, Van Zalinge, Thuok, & Vuthy, 2000); in forestry different forest uses may conflict (Sulieman, 1999); and in general, the objectives of rich and the powerful may not be congruent with the needs and demands of the poor and the marginalized (Baland & Platteau, 1999; Golooba-Mutebi, 2004; Johnson, Deshingkar, & Start, 2005).

Often, the conflict resolution literatures contend that disagreement and conflict among local resource users needs to be dealt with before the collective use of that resource can be successful. Conflict itself is the (almost exogenous) unit of analysis, either as a dependent variable (what causes conflict?), or as an explanatory variable (how does conflict prevent sustainable natural resource management?). When explaining conflict, what scholars most often study is the differences within user groups. Conventionally, when trying to settle conflicts, in order to get on with the sustainable governance of a resource, the literature proposes solutions that involve (a) third party involvement, (b) institutional arrangements that facilitate the meaningful access for all to arenas for conflict resolution (e.g. "stakeholder consultations" in order to have individuals with different preferences discuss their disagreements), and (c) the accommodation of pluralism through some form of exclusive spatial delineation of different resource uses (e.g. zoning).

Many literatures on conflict resolution associated with local resource governance, relate to agencies' struggles to become "participatory" in the achievements of their goals (Beierle & Konisky, 2000; Buchy & Hoverman, 2000; Gregory, McDaniels, & Fields, 2001; Lane, 2001; Proctor, 1998). Agencies panic when participatory approaches turn out to lead to opening up a Pandora's Box full of conflicts and disagreement between the "stakeholders." The typical remedy in such situations is to resort to third party

involvement. Bruckmeier (2005) for example, describes a conflict resolution approach according to which stakeholders and their interests are mapped (presumably by an outside facilitator), the existing conflicts are analyzed, and a method for conflict mitigation is developed in cooperation with the stakeholders. All these steps culminate in a proposal that is integrated in the overall system for the management of the resource (Bruckmeier, 2005) (p.65). This approach is commonly applied by practitioners working for NGOs, Donors and State Agencies. Many scholars refer to the importance of facilitating stakeholder consultations as a tool to avoid and to resolve conflict (Brown & Ekoko, 2001; Hildyard, Hedge, Wolvekamp, & Reddy, 1999; Ravnborg & del Pilar Guerrero, 1999; Sandström et al., 2003; Schusler, Decker, & Pfeffer, 2003).

A popular solution to conflict that these institutions for stakeholder consultation, (whether crafted and facilitated by third parties or not) should look for according to many, is some sort of system of spatial zoning where different, potentially conflictive landuses are separately accommodated. In West Africa the concept of *gestion des terroirs* is based on participatory stakeholder consultations that lead to the formulation of regional development plans that recognize different zones for different land uses (Turner, 1999). Also, in the context of the management of protected areas "buffer zones" are used to mitigate conflictive landuses (Fearnside, 1999; Goldman, 2003; Maikhuri, Nautiyal, Rao, & Saxena, 2001; Veríssimo, Cochrane, Souza Jr., & Salomao, 2002).

The literature on conflict in a context of local resource governance is rich and has clarified and solved many puzzles. Nonetheless, we think the conventional approach suffers from some important shortcomings. Individual preferences, almost by definition, cannot be translated into a coherent group preference. New conflicts will always arise. Rather than applying a sequential "solve-the-conflict-and-get-on-with-it" approach, we argue that conflict can be a virtue under some circumstances. We propose an approach that looks at how the rule-making procedure deals with conflict. We feel that an approach that is mainly concerned with conflict *resolution* (often through third party intervention), that takes conflict itself as the unit of analysis[4], and that frames the problem of emerging

[4] It may sound contradictory to propose a study of conflict that *does not* primarily focus on conflict. We feel however that conflict could be seen a symptom of an institutional mismatch between individual preferences and the group preference. It is therefore that we think it makes sense to look more carefully at the rule making procedures, rather than at the conflict itself.

conflicts in static, isolated and sequential terms, is limited in shedding light on both the origins and effects of conflicts in governance activities related to natural resources. Hence, we propose an approach that recognizes that conflict can, or may not always need to be instrumentally resolved (much less by outsiders), that takes institutions as its unit of analysis, and that frames intra-community conflict as an ongoing, dynamic process that is narrowly related to the crafting and emergence of institutions for local natural resource governance itself. In this respect, we believe New Institutionalism can inform this research agenda.

# 3 Conflict and Institutions

One of the basic assumptions in the New Institutionalism approach to the study of conflicts is that institutions matter. Most of the time there is not a single way to accommodate multiple preferences about, say forest resource use. If and how a consensus is reached depends on the rules chosen to come to that particular agreement. Acceptance of the consensus, and the subsequent non-occurrence of conflict, has much to do with the perceived legitimacy of the rule making procedures that were used to reach it. Second, once a more or less stable consensus about resource use exists, institutional arrangements that decide on if and how disagreement about operational rules is handled (or manipulated through agenda-setting, the reformulation of issues, and leadership), explain the nature and potential intensity of ongoing or recurring conflicts.

Conflict has been, from the beginning, at the core of the New Institutionalism literature[5]. Arrows (1951) showed that there exists no mechanism for translating preferences of rational individuals into a coherent group preference that simultaneously satisfies the condition of universal admissibility (U), Pareto optimality (P), independence from irrelevant alternatives (I), and non-dictatorship (D). Arrow's Theorem leads to the prediction that, for example, in the US Congress the multiple preference orderings of legislators combined with multi-dimensionality of issues would rapidly lead to "cycling." However, in actuality, Congressional outcomes show considerable stability. Several New Institutionalist scholars have studied how this intriguing discrepancy could be explained,

[5] New Institutionalism is defined by Eggertsson as the discipline that explains how a particular structure of control emerges, survives, and decays, and examines the implications of various systems of control for the organization and for the (aggregate) outcome of human behavior (Eggertsson, 1996).

and ended up showing how "institutions[6]" shape the observed outcomes (Hall & Taylor, 1996; Shepsle & Bonchek, 1997).

How are institutions and conflict over CPR use related? When forest governance decision making autonomy, to a greater or lesser extent, is devolved to the actual users of that forest, we expect something similar to what Arrow described to occur. Choices have to be made about form and intensity of resource use, and about contributions that are necessary to provide and produce public goods such as monitoring. The community is likely to exist of individuals with different preferences. Imagine the following stylized and simplified situation: Three persons {A, B, C} have different preferences over the alternatives {grazing (G), logging (L), farming (F)[7]}:

**Table 1**

| **Alberto** | **Benita** | **Carlos** |
|---|---|---|
| Grazing | Logging | Farming |
| Logging | Farming | Grazing |
| Farming | Grazing | Logging |

Preferences in the example above are extremely heterogeneous. There is no majority that shares the same first preference[8]. One could then resort to a *round-robin tournament*, where each alternative is pitted against each other alternative. But it turns out that the "winner" in such a contest depends on the agenda that determines the sequence of voting.

[6] North defines institutions, as the "rules-of-the-game." They diminish uncertainty (and thus transaction costs) that arises from otherwise unpredictable behavior of others (North, 1990). Eggertsson defines institution as the rules that assign control over resources - through rights and duties - to individual persons or associations of persons (Eggertsson, 1996). Diermeier and Krehbiel define (political) institutions as a set of contextual features in a collective choice setting that defines constraints on, and opportunities for individual behavior in the setting (Diermeier & Krehbiel, 2003). Ostrom, in her study of self-governed common-pool resources, is more particular. She defines institutions as the sets of working rules that are used to determine who is eligible to make decisions in some arena, what action are allowed or constrained, what aggregations rules will be used, what procedures must be followed, what information must or must not be provided, and what payoffs will be assigned to individuals dependent on their actions (E. Ostrom, 1986).

[7] Note that the alternatives could just as well refer to the preference ranking regarding the location of a conservation area, the total amount of firewood that can be harvested in a given season, the amount to be paid in contribution, the time to be spent on collective forest maintenance tasks, etc.

[8] Note that in this extreme example alternative voting mechanisms, such as a plurality runoff, a sequential runoff, or a Borda count would still result in a draw.

**Table 2**

| | **Start with…** | **Continue with…** | **And the winner is…!** |
|---|---|---|---|
| **Agenda 1: GLF (preferred by Carlos)** | G vs. L => G wins | G vs. F => F wins | Farming |
| **Agenda 2: FGL (preferred by Benita)** | F vs. G => F wins | F vs. L => L wins | Logging |
| **Agenda 3: FLG (preferred by Alberto)** | L vs. F => L wins | L vs. G => G wins | Grazing |

Also, as it turns out, individuals can vote strategically, to have their preference win. If Carlos has agenda setting power, and picks Agenda 1 (for obvious reasons), Alberto (who really doesn't want any farming in the forest) could vote for L when this alternative is pitched against G in the first round (instead of this real preference G). This would lead to L being pitched against F in the second round, and beating F. (This is example is based on and adapted from Shepsle and Bonchek (1997) who picture 3 persons trying to decide how to spend their afternoon.)

In general, the institutionalist literature shows us that any choice environment in which (boundedly) rational individuals with preferences must decide on a coherent group preference is potentially conflictive. First, there are may be multiple majorities. Second, there are multiple ways of preference revelation through either sincere of sophisticated voting. Third, there are multiple ways for groups to decide by voting. Under such circumstances, institutions matter. No matter what the outcome of the collective choice process, there will always be reason for the "losers" to feel disgruntled, and to challenge that outcome. Consensuses are unstable, contestable and can be expected to be challenged (See the literature on agenda setting, leadership, and issue networks (Arnold, 1990; Baumgartner & Jones, 1993; Gormley Jr., 1986).) Anything can happen. In order to understand why people may feel unhappy about the outcome it is important to look at rule making procedures.

What does this imply for the validity of the "conventional" solution laid out in the previous section? First, third party intervention cannot be expected to lead to anything, unless a set of rules were imposed. Second, stakeholder consultation wouldn't really lead to a solution either, since there is not "a" solution to most conflicts. Third, zoning would

help solving the problem only if it would result in the parceling-up of the CPR into (semi-) privatized lots. McKean (2000) has laid out why this may not always be a good idea[9].

# 4 A Institutionalist Approach to the Study of Forest User Conflicts

In this section, we develop an alternative approach to the study of conflict in a CPR governance setting that focuses on institutions, or rule making procedures. We argue that an institutional approach to conflict allows distinguishing between different types of conflict, and helps understanding if and how conflicts can be expected to be either helpful or obstructive to sustainable resource use.

March and Olsen, in a study on organization management, conclude that empirical research seems to indicate that "conflict is endemic and that it tends to be interminable rather than settled by prior arrangement" (March & Olsen, 1984) (p.742). It is often overlooked that the continuous articulation of disagreement, and thus the potential of conflict, is an inherent part of the dynamics involved in the crafting of the institutional arrangements necessary for collective CPR management. Herein lays an important paradox: Conflict may be necessary and unwanted at the same time. It is "necessary" because the decentralized, self-governance of CPRs requires the articulation of different individual preferences. It is "unwanted" because disagreement and conflict complicate collective action. Collective action is essential to escape the tragedy of the commons.

As explained earlier, there is no way to derive a coherent and stable group preference out of a number of diverging individual preferences, without resorting to "questionable" institutional arrangements; there will be individuals with a legitimate

[9] First, due to interdependent ecosystems, forests may cease to optimally produce the goods and service desired by its users, when divided into smaller parcels. Second, communities may prefer a joint form of management due to the uncertainty of the productivity of any particular section of the resource system. Third, if different resource users make their decisions about resource use independently and separately, they may well cause harm to each other that requires numerous one-on-one negotiations to alleviate. An institutional alternative to this series of bilateral exchanges is to create a common-property regime to make resource management decisions jointly, acknowledging and internalizing the multiple negative externalities that are implicit in resource use in this setting. Finally, sometimes administrative support to enforce property rights to individual parcels may not be available: Creating a common-property regime here is a way of substituting collective management rules –which function as imaginary fences and informal courts internal to the user group- for what is missing.

reason to challenge these arrangements. Challenging institutional outcomes can be done for example by reformulating policy issues (thus altering the individual preference distributions), by challenging leadership (thus altering the agenda-setting power relations), or by questioning the voting mechanism, or rule-making procedure (thus altering the expected outcome of public choice). A common strategy to force institutional outcomes to be reconsidered is simply ignoring the rules in use. Continuous adjustments to the institutional arrangements are likely to be necessary.

First, the conflict level at any stage (either when formulating the initial *operational* rules[10] or during the process of readjusting them) will be determined by the *biophysical and material conditions* of the resource itself. Is the CPR characterized by scarcity or by abundance? Is there a wide diversity of goods and services that can be used or harvested from the forest, or is resource use limited? Are diverse forest uses compatible or not? Is productivity distributed in a temporal and spatial evenly manner? Is the resource resilient, or vulnerable to shocks? Are the physical characteristics of the resource such that making exclusive access- and/or monitoring arrangements is relatively easy?

Second, conflict level will be determined by the *attributes of the community*, especially in terms of individual preference distributions. Are preferences about resource use wildly divergent? Are sub-groups with different preferences about resource use more or less equal in size or power? In micro-economic terms, it could be said that individuals attach different marginal costs and benefits to CPR use. For example, an agreement that stipulates that all community households are to send one able-bodied man per month for maintenance work, represents different marginal costs to the family with only one son than to a family with five sons.

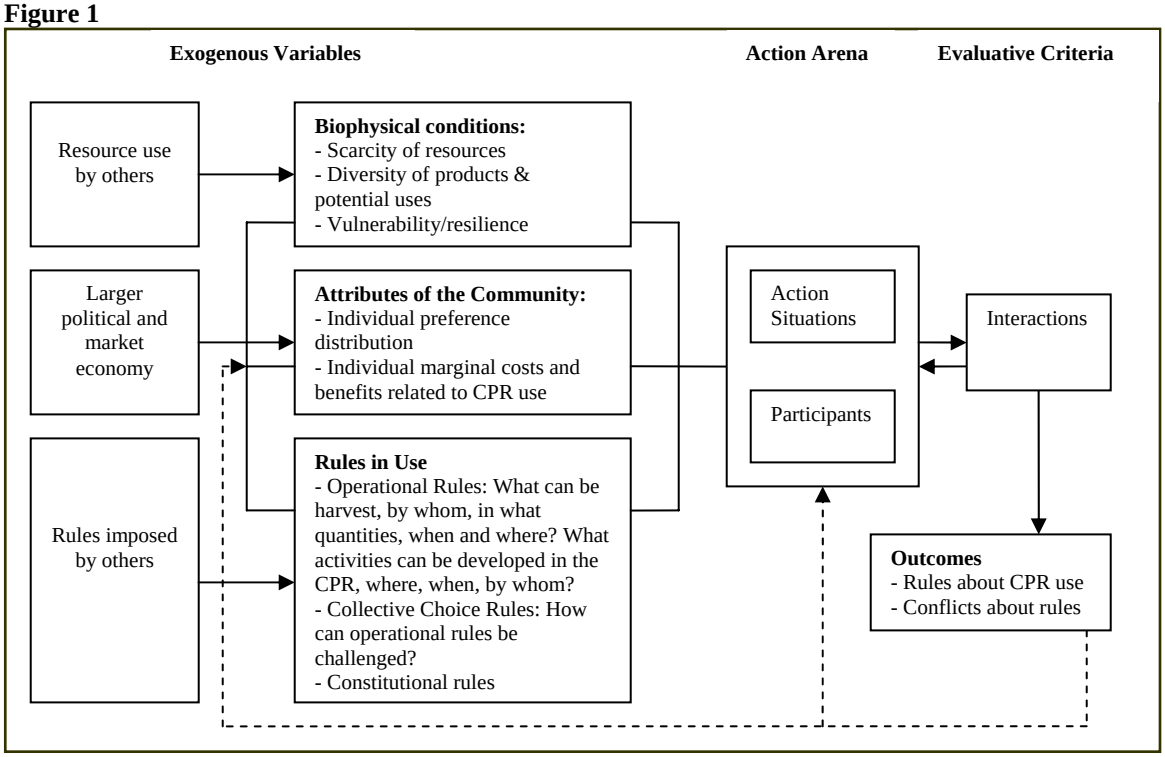
Third, the level and intensity of conflict is determined by *the rules-in-use* that constrain participant interaction. An institutional analysis of conflict should distinguish between *operational rules,* or the ever-day rules that direct, guide, or constraint individual behavior, and, *collective choice rules*, that is, the rules that determine who is eligible to adapt the operational rules, and what the procedures are to do that. Operational rules stipulate for example what can be harvest, by whom, in what quantities, when and

[10] Operational rules are the every-day rules that guide, direct, or constrain individuals in their behavior.

where? Or, what activities can be developed in the CPR, where, when, and by whom? Collective choice rules set the margins for challenging operational rules.

Institutional development is a dynamic process; the use of the resource in itself (by the user group, and by others) will alter its biophysical attributes, and thus the very premises upon which the initial agreement may be based; the attributes of the individual user group members is constantly subject change, for example due to their participation in the larger (political and market) economy; related to the above, but also associated with exogenous factors, the rules that put a constraint on group interactions in general and on resource use in particular will be relentlessly contested as time passes, both by individual group members and by external authorities. In figure 1 (based on the Ostrom's (2005) *Institutional Analysis and Development* (IAD) framework ), we try to graphically capture these dynamics:

**Figure 1**



# 5 The importance of Rules in the Study of Conflict: Some Empirical Evidence

In 1993 the International Forestry Resources and Institutions (IFRI) research program was created as a global, interdisciplinary research network at the Workshop in Political Theory and Policy Analysis at Indiana University. Ever since, IFRI has worked to gather systematic data on local forest governance systems around the world. IFRI, by means of a set of carefully designed standard research protocols focuses on empirical analysis of the human-ecological interface. The IFRI database integrates biophysical with social data about factors that affect forest ecosystem dynamics in 15 countries in Africa[11], Asia[12], Latin America[13], and North America[14]. We used this data to illustrate some of the point we made in the section above. The illustrations are however, limited and patchy. It serves merely as a prelude to more future research.

*a. Rules as a source of conflict*

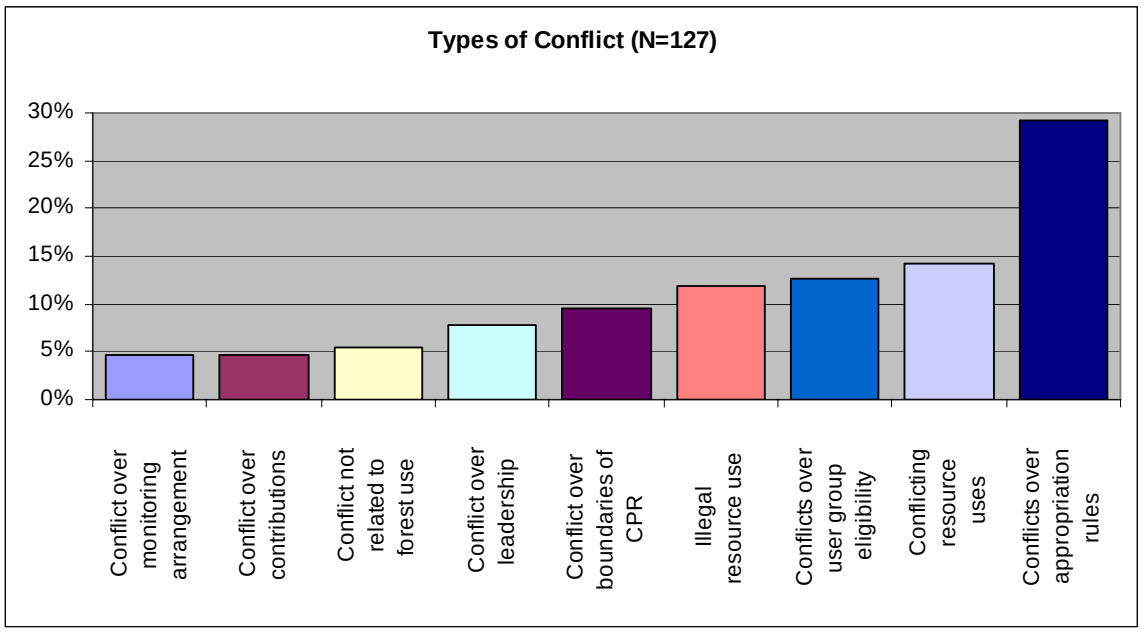
The first IFRI data alludes to the fact that focusing on heterogeneous preferences in relation with scarce resources may be a limiting approach. Contrary to the casually posited claims in the literature, conflicts in a local natural resource governance setting are not necessarily related to conflicting interests, per se. For example, in the IFRI data base, opposite to what is often assumed, heterogeneity in terms of ethnicity, religion and/or caste in itself is not significantly related to the occurrence of conflict. Also, cattle ownership, often mentioned as a trigger for conflict in forest communities (due to the apparent incompatibility between grazing, crop cultivation and forest use) is not

[11] Uganda, Tanzania, Kenya, Madagascar,
[12] India, Nepal, Bhutan,
[13] Ecuador, Bolivia, México, Brasil, Colombia, Guatemala, Honduras
[14] USA

significantly related to conflict, in our data. Salience, measured as the percentage of user group members that depend on the forest for their subsistence, is not a significant variable for explaining the emergence of intra-group conflict.

What then is causing conflicts? Conflict mostly seems to occur over the institutional arrangement in place to constrain individual harvesting behavior and to organize collective action. Rules are contested; they are not followed by all; they are unclear and interpreted differently, etc. In the IFRI data base, whenever a conflict in a forest user group is reported, this conflict is briefly described. We used this description to make a typology of conflicts and the frequency with which they occur. In almost 30% of the user groups for which a conflict is recorded, the conflict springs from the fact that existing appropriation rules (-who can harvest what, how much, where and when-) are contested by some. Also, many conflictive situations emerge because of the apparent absence of an institutional framework that accommodates the interests of resource users who use the forest for different reasons. Many conflicts have to do furthermore, with questions related to boundary rules (Ostrom 2005): Who is eligible to be a member of the user group? Another set of types of conflicts are related to group members "illegally" harvesting forest resources (illegal logging). Also, the very boundaries of the CPR are a source of conflict when some group members decide to convert part of the CPR to private agricultural land (encroachment). Leadership is reported as a source of conflict (entitlement to leadership position, abuse of authority). Also, arrangements related to membership contributions (in kind, cash or time) are contested. So are certain monitoring arrangements (e.g. payment of fines). Only a small number of conflicts has nothing to do with the use of forest uses.

**Figure 2**




It seems that not the attributes of the resource (scarcity, diversity, resilience) or the attributes of the community (heterogeneity in preference ordering), but the rules crafted to deal with these attributes are the main source of conflict.

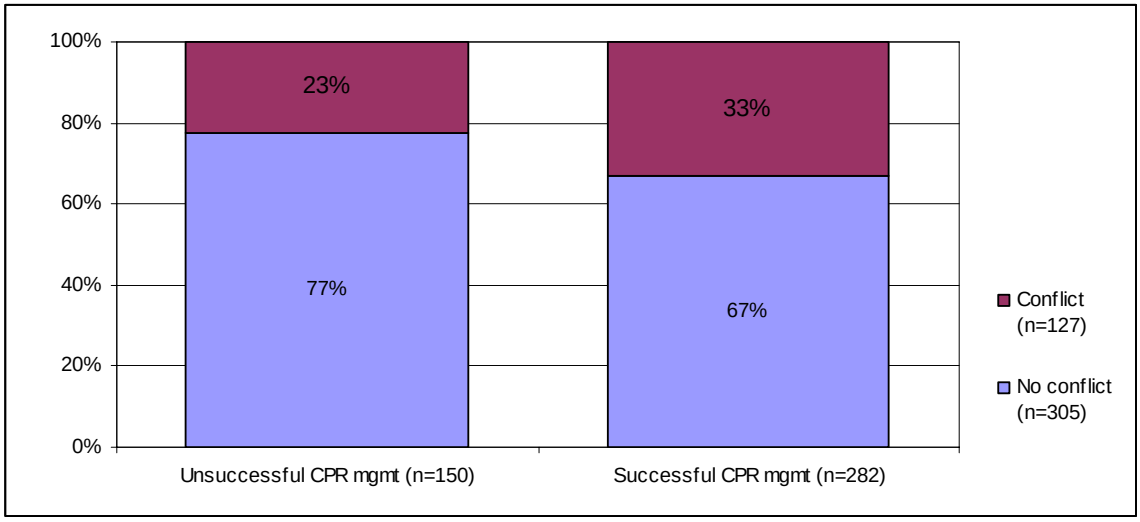
*b. Is conflict always a bad thing?*

In order to look at what sets CPR management regimes that are successful in spite of reported conflict apart from other CPR institutional arrangements we selected all forest user groups for which a conflict was reported, but where we have reason to believe that their CPR governance regime is working. We then proceeded to compare these user groups to groups that are (a) conflictive, but harvest from a forest that is in worst conditions than it ought to be according to the forest expert in the research team, (b) not conflictive, and seem to be successful in managing the forest they are harvesting from, and to groups that are (c) not conflictive, but also not doing very well managing the forest they use. In order to determine the success of these management regimes, we selected from the set of conflictive user groups those cases where an independent forester, part of

the IFRI research team, was of the opinion that the vegetation density of the forest in question is about normal or (very) abundant.

Significantly more forest user groups report conflict that harvest from forest where according to the forester in IFRI research team the vegetation density is about average or (very) abundant relative to similar forests in the same area, than forest user groups that harvest from forests that are found to have relatively sparse vegetation. Of course, this correlation, doesn't say anything about the main direction of causality. However, if one were to argue that forest condition determine the level of conflict (rather than the other way around) wouldn't one expect to find more conflict in forests with sparse vegetation?

**Figure 3**

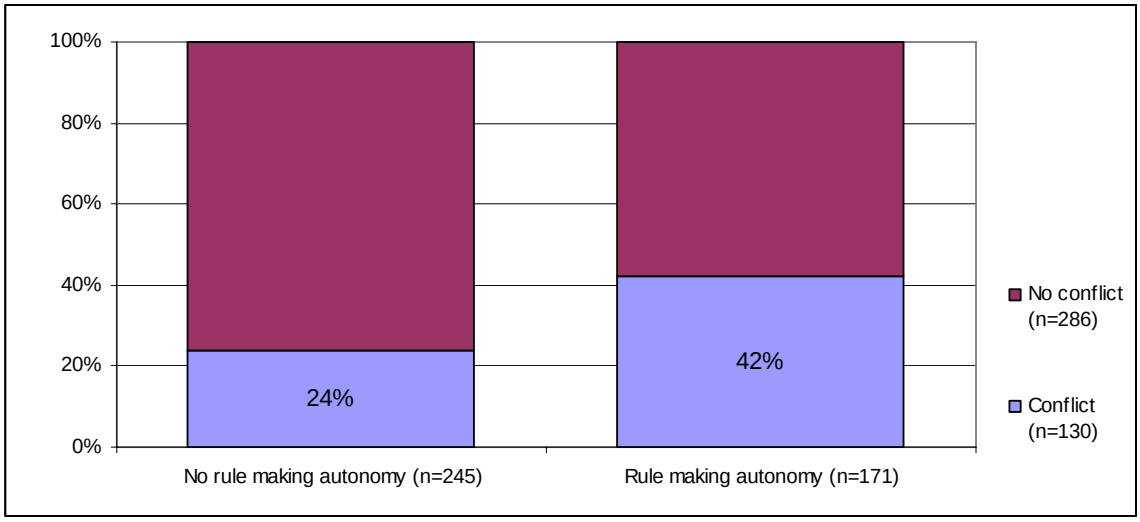



Pearson $chi^2(1) = 5.0166$ Pr = 0.025

Forest user groups that report to have considerable autonomy to craft the rules about how the CPR is to be managed are significantly more conflictive than those groups that lack that rule-making autonomy. Whereas 24% of the forest user groups without

rule-making autonomy report internal conflict, 42% of the groups that can make their own rules quarrel over these rules.

**Figure 4**

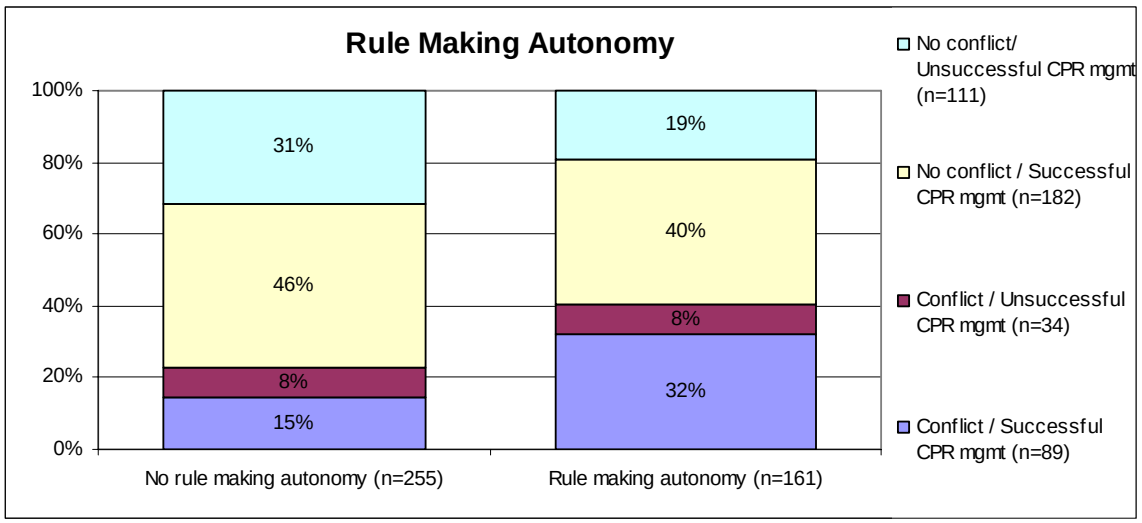



Pearson $chi^2(1) = 14.2555$ Pr = 0.000

Autonomous rule making involves the articulation of, and negotiation about individual preferences. Whereas the imposition of rules by external authorities can be expected to mute differences, autonomous rule making inherently brings opposing interests out in the open.

However, not only are communities that make their own rules more conflictive, we also find that conflictive communities are better able to manage their resource successfully when granted rule making autonomy. When communities cannot make their own rules, they may not experience as much conflict, but this doesn't mean that they do a better job keeping their resource in a better shape. To the contrary, autonomous forest user group are indeed more conflictive, they also seem to be more successful in their CPR governance.

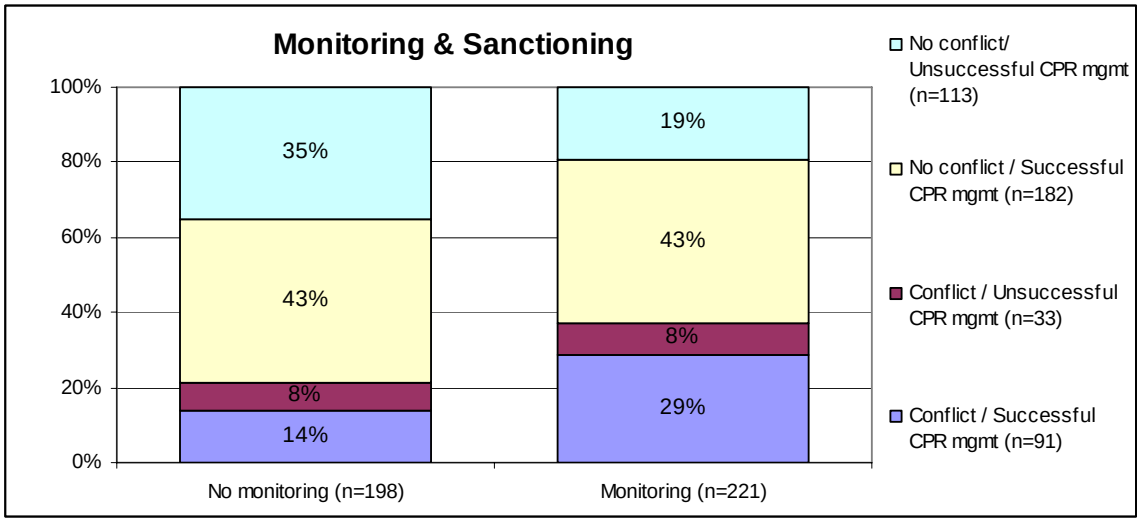
**Figure 5**




Pearson $chi^2(3) = 20.7155$ Pr = 0.000

Another interesting finding is that those groups that report to engage in monitoring of their resources, report significantly more conflicts (37% against 22%). It is commonly agreed that monitoring is crucial for good CPR governance, and indeed from the data it shows that groups that have arranged for monitoring are at the same time more successful in governing their resource. We argue that this is another piece of evidence that conflict may be a necessary component of decentralized CPR governance.

**Figure 6**




Pearson $chi^2(9) = 21.1186$ Pr = 0.001

# 6 Conclusion

The study of internal conflict within a group of people that govern a resource that has the characteristics of a common pool resource conventionally focuses on conflict resolution; Conflict is perceived as a signal for the absence of consensus. This in turn may hinder the collective action that is necessary to prevent a tragedy of the commons from happening. In many analyses, conflict is tied to a combination of heterogeneous preferences within a group of resource users, and resource scarcity. In an attempt to solve the conflict(s), it is often suggested that stakeholders with conflicting interests are brought together (often by third parties), to discuss their disagreements and to reach a new consensus. That consensus often includes the designation of geographically separated zones to competing or incompatible forms of resource use.

In this paper we have pointed out why we think that this approach has some important shortcomings. First, we do not agree that all conflict needs to be solved at all costs before governance activities are carried out. We have provided evidence that confirms the findings of Ostrom (1990) among others, that "conflict" and "sustainable resource use" are not necessarily incompatible. The self-governance of forest resources inherently requires the articulation of, and negotiation about individual preferences. Contrary to centralized resource governance, where rules may be imposed (-regardless of whether these rules are effective or efficient-), autonomous rule making inherently brings opposing interests out in the open. However, although it is certainly often the case that communities that make their own rules are significantly more conflictive, we also find that conflictive communities are better able to manage their resource successfully when granted rule making autonomy. Another example, emphasizing the potential virtue of conflict, is that communities that engage in monitoring activities do (-as expected-) a better job at protecting their resource, but also are they significantly more conflictive than groups that do not screen to what extent the members (and others) abide to the rules about resource use.

Second, we think apart from focusing on the attributes of the user group (e.g. heterogeneous preferences), and/or on the attributes of the resource (e.g. scarcity), we think that it is crucial that the study of conflict in a CPR context include an explicit emphasis on rules and rule-making procedures. Formal theory, applying a rational choice

behavioral postulate, predicts that it is impossible to translate multiple individual preference orderings -especially when combined with the multi-dimensional issues that are so characteristic of forest use- into a coherent and overall accepted group preference. A consensus in this case, will always be the result of the specific rule-making procedure that is chosen to reach that compromise. This means that the consensus can always be challenged. This can be done by reformulating policy issues, by challenging leadership, or by questioning the voting mechanism, or rule-making procedure. Sabotaging the rules by simply not following them is a common strategy to reopen negotiations.

We argue that it should be recognized that conflict may a part of the process that leads to the emergence of a more or less stable institutional arrangement for the governance of the commons. Many of the conventional tools for dealing with conflict, such as stakeholder consultation or zoning, may in fact obstruct this process. It is important to distinguish between those sorts of conflict that will eventually lead to the adjustment of operational rules toward an equilibrium that in the eyes of individuals better reflect their divergent preference orderings *and* more sustainable resource use on the one hand, and those sorts of conflicts that are mainly disruptive and prohibitive to collective action, on the other. We think that the IAD framework provides the tools and the overall overview to better distinguish between one conflictive situation and the other.

Policy makers may be weary of the fact that granting rule-making authority to communities seems to bear the risk of leading to conflict on the one hand. On the other hand, it seems possible however, that out of this conflictive situation emerges a fairly stable and successful consensus to sustainably govern a local CPR. An important theme on the conflict research agenda is to provide tools to distinguish between "good" and "bad" types of conflict. The answer to the question what sets one conflict apart from another, is tied to the study of rule-making procedures. Although throughout the article we have posited some ideas about conflicts and the sustainable self-governance of natural resources, at the end of this paper many questions still remain to be answered. Respecting a long academic tradition, the last sentence of this paper will therefore be “more research is still required”.

**References**


Agrawal, A., & Gibson, C. C. (1999). Enchantment and Disenchantment: The Role of Community in Natural Resource Conservation. *World Development, 27*(4), 629-649.

Anderson, J., Clément, J., & Crowder, L. V. (1999). Pluralism in Sustainable Forestry and Rural Development. In F. a. A. O. (FAO) (Ed.), *Pluralism and Sustainable Forestry and Rural Development* (pp. 17-28). Rome: Food and Agriculture Organization (FAO).

Andersson, K. (2000). *Can Decentralization Save Bolivia's Forests? An Institutional Analysis of Municipal Forest Management.* Unpublished Dissertation, IU, Bloomington, IN.

Andersson, K. (2003). What Motivates Municipal Governments? Uncovering the Institutional Incentives for Municipal Governance of Forest Resources in Bolivia. *Journal of Environment and Development, 12*(1), 5-27.

Andersson, K. (2004). Who Talks with Whom? The Role of Repeated Interactions In Decentralized Forest Governance. *World Development, 32*(2), 5-27.

Andersson, K., Gibson, C. C., & Lehoucq, F. E. (2004). The Politics of Decentralized Natural Resource Governance. *Political Science and Politics, 37*(3), 421-426.

Andersson, K., & Van Laerhoven, F. (2007). From Local Strongman to Facilitator: Institutional Incentives for Participatory Municipal Governance in Latin America. *Comparative Political Studies*.

Arnold, R. D. (1990). *The Logic of Congressional Action*. New Haven, London: Yale University Press.

Arrow, K. J. (1951). *Social Choice and Individual Values*. New Haven: Yale University Press.

Axelrod, R. (1997). *The Complexity of Cooperation. Agent-Based Models of Cooperation and Collaboration*. Princeton: Princeton University Press.

Baland, J.-M., & Platteau, J.-P. (1999). The Ambiguous Impact of Inequality on Local Resource Management. *World Development, 27*(5), 773-788.

Bardhan, P. K., & Dayton-Johnson, J. (2001). Unequal Irrigators: Heterogeneity and Commons Management in Large-Scale Multivariate Research. *National Research Council's Institutions for Managing the Commons project*.

Baumgartner, F. R., & Jones, B. D. (1993). *Agenda and instability in American politics*. Chicago, London: University of Chicago Press.

Beierle, T. C., & Konisky, D. M. (2000). Values, Conflict, and Trust in Participatory Environmental Planning. *Journal of Policy Analysis and Management, 19*(4), 587-602.

Black, D. (1958). *The Theory of Committees and Elections*. Cambridge: Cambridge University Press.

Brown, K., & Ekoko, F. (2001). Forest Encounters: Synergy among Agents of Forest Change in Southern Cameroon. *Society & Natural Resources, 14*, 269-290.

Bruckmeier, K. (2005). Interdisciplinary Conflict Analysis and Conflict Mitigation in Local Resource Management. *Ambio, 34*(2), 65-73.

Buchanan, J. M., & Tullock, G. (1965). *The Calculus of Consent*. Ann Arbor: University of Michigan Press.

Buchy, M., & Hoverman, S. (2000). Understanding Public Participation in Forest Planning: A Review. *Forest Policy and Economics, 1*, 15-25.

Burki, S. J., Perry, G. E., & Dillinger, W. R. (1999). *Beyond the Center: Decentralizing the State*. Washington, DC: World Bank.

Degen, P., Van Acker, F., Van Zalinge, N., Thuok, N., & Vuthy, L. (2000). *Taken For Granted. Conflicts over Cambodia's Freshwater Fish Resources.* Paper presented at the IASCP Conference 2000.

Downs, A. (1957). *An Economic Theory of Democracy*. New York: Harper & Row.

Eggertsson, T. (1996). The Economics of Control and the Cost of Property Rights. In S. S. Hanna, C. Folke & K.-G. Mäler (Eds.), *Rights to Nature. Ecological, Economic, Culture, and Political Principles of Institutions for the Environment* (pp. 157-175). Washington, DC: Island Press.

Fearnside, P. M. (1999). Biodiversity as an Environmental Service in Brazil's Amazonian Forests: Risks, Values, and Conservation. *Environmental Conservation, 26*(4), 305-321.

Gibson, C. C., McKean, M., & Ostrom, E. (Eds.). (2000). *People and Forests. Communities, Institutions, and Governance*. Cambridge, MA: MIT Press.

Goldman, M. (2003). Partitioned Nature, Privileged Knowledge: Community-based Conservation in Tanzania. *Development and Change, 34*(5), 833-862.

Golooba-Mutebi, F. (2004). Reassessing Popular Participation in Uganda. *Public Administration and Development, 24*, 289-304.

Gormley Jr., W. T. (1986). Regulatory Issue Networks in a Federal System.

Gregory, R., McDaniels, T., & Fields, D. (2001). Decision Aiding, Not Dispute Resolution: Creating Insights through Structured Environmental Decisions. *Journal of Policy Analysis and Management, 2001*(3), 415-432.

Hall, P. A., & Taylor, R. C. R. (1996). Political Science and the Three New Institutionalisms. *Political Studies, 54*, 936-957.

Hildyard, N., Hedge, P., Wolvekamp, P., & Reddy, S. (1999). Same Platform, Different Train: Pluralism, Participation and Power. In F. a. A. O. (FAO) (Ed.), *Pluralism and Sustainable Forestry and Rural Development* (pp. 277-304). Rome: Food and Agriculture Organization (FAO).

Johnson, C., Deshingkar, P., & Start, D. (2005). Grounding the State: Devolution and Development in India's *Panchayats*. *The Journal of Development Studies, 41*(6), 937-970.

Knight, J. (1992). *Institutions and Social Conflict*. New York: Cambridge University Press.

Lane, M. B. (2001). Affirming New Directions in Planning Theory: Comanagement of Protected Areas. *Society & Natural Resources, 14*, 657-671.

Larson, A. M. (2003). Decentralization and Forest Management in Latin America: Towards a Working Model. *Public Administration and Development, 23*, 211-226.

Larson, A. M. (2004). Formal Decentralisation and the Imperative of Decentralisation 'from Below': A Case Study of Natural Resource Management in Nicaragua. *European Journal of Development Research, 16*(1), 55-70.

Larson, A. M., & Ribot, J. C. (2004). Democratic Decentralisation through a Natural Resource Lens: An Introduction. *European Journal of Development Research, 16*(1), 1-25.

Lazer, D., & Friedman, A. (2006, April 21-24). *Policy Networks and Diffusion: How Small Worlds Reduce Systemic Performance.* Paper presented at the Midwest Political Science Association Conference, Chicago.

Lubell, M., Schneider, M., Scholtz, J. T., & Mete, M. (2002). Watershed Partnerships and the Emergence of Collective Action Institutions. *American Journal of Political Science, 46*(1), 148-163.

Maikhuri, R. K., Nautiyal, S., Rao, K. S., & Saxena, K. G. (2001). Conservation Policy-People Conflicts: A Case Study from Nanda Devi Biosphere Reserve (a World Heritage Site), India. *Forest Policy and Economics, 2*, 355-365.

March, J. G., & Olsen, J. P. (1984). The New Institutionalism: Organizational Factors in Political Life. *The American Political Science Review, 78*(3), 734-749.

Maro, P. (1987). The Impact of Decentralization on Spatial Equity and Rural Development in Tanzania. *World Development, 18*, 673-693.

McKean, M. (2000). Common property: What is it, what is it good for, and what makes it work? In C. Gibson, M. McKean & E. Ostrom (Eds.), *People and forests: Communities, institutions, and governance*. Cambridge, MA: MIT Press.

Nygren, A. (2000). Environmental Narratives on Protection and Production: Nature-based Conflicts in Río San Juan, Nicaragua. *Development and Change, 31*, 807-830.

Oakerson, R. J. (1999). *Governing Local Public Economies: Creating the Civic Metropolis*. Oakland, Calif.: ICS Press.

Olson, M. (1965). *The Logic of Collective Action. Public Goods and the Theory of groups* (Vol. CXXIV). Cambridge, MA: Harvard University Press.

Ostrom, E. (1990). *Governing the Commons: The Evolution of Institutions for Collective Action*. New York: Cambridge University Press.

Ostrom, E. (1992). *Crafting Institutions for Self-Governing Irrigation Systems*. San Francisco, CA.: ICS Press.

Ostrom, E. (2005). *Understanding Institutional Diversity*. Oxford: Princeton University Press.

Ostrom, E., & Gardner, R. (1993). Coping with Asymmetries in the Commons: Self-Governing Irrigation Systems Can Work. *Journal of Economic Perspectives, 7*(4), 93-112.

Ostrom, V. (1999 (reprinted)). Water and Politics California Style. In M. D. McGinnis (Ed.), *Polycentric Governance and Development. Readings from the Workshop in Political Analysis and Policy Analysis* (pp. 31-41). Ann Arbor: The University of Michigan Press.

Ostrom, V., Tiebout, C. M., & Warren, R. (1961). The Organization of Government in Metropolitan Areas: A Theoretical Inquiry. *American Political Science Review, 55*, 831-842.

Pacheco, P. (2004). What Lies behind Decentralization? Forest, Powers and Actors in Lowland Bolivia. *European Journal of Development Research, 16*(1), 90-109.

Proctor, J. (1998). Environmental Values and Popular Conflict over Environmental Management. A Comparative Analysis of Pulbic Comments on the Clinton Forest Plan. *Environmental Managenent, 22*(3), 347-358.

Ravnborg, H. M., & del Pilar Guerrero, M. (1999). Collective Action in Watershed Management. Experiences from the Andean Hillsides. *Agriculture and Human Values, 16*(3), 257-266.
Ribot, J. (1995). From Exclusion to Participation: Turning Senegal's Forestry Policy Around? *World Development, 23*(9), 1587-1599.
Ribot, J. (1998). Theorizing Access: Forest Profits along Senegal's Charcoal Commodity Chain. *Development and Change, 29*, 307-341.
Ribot, J. (1999a). Accountable Representation and Power in Participation and Decentralized Environmental Management. *Unasylva, 50*(4).
Ribot, J. (1999b). Decentralization, Participation and Accountability in Sahelian Forestry: Legal Instruments of Political-Administrative Control. *Africa, 69*(1).
Ribot, J. (2002). *Democratic Decentralization of Natural Resources. Institutionalizing Popular Participation*. Washington, D.C.: World Resources Institute.
Ribot, J. (2003). Democratic Decentralization of Natural Resources: Institutional Choice and Discretionary Power Transfers in Sub-Saharan Africa. *Public Administration and Development, 23*, 53-65.
Sandström, P., Granqvist, P., Tina, Edenius, L., Tømmervik, H., Hagner, O., Hemberg, L., et al. (2003). Conflict Resolution by Participatory Management: Remote Sensing and GIS as Tools for Communicating Land-use Needs for Reindeer Herding in Northern Sweden. *Ambio, 32*(8), 557-567.
Schusler, T. M., Decker, D. J., & Pfeffer, M. J. (2003). Social Learning for Collaborative Natural Resource Management. *Society & Natural Resources, 15*, 309-326.
Shepsle, K. A., & Bonchek, M. (1997). *Analyzing Politics. Rationality, Behavior, and Institution*. New York, NY: W.W. Norton & Company.
Simon, H. (1955). A Behavioral Model of Rational Choice. *Quarterly Journal of Economics, 69*(1), 99-118.
Simon, H. (1957). *Models of Man*. New York: Wiley.
Sneddon, C. (2002). Water Conflicts and River Basins: The Contradictions of Comanagement and Scale in Northeast Thailand. *Society & Natural Resources, 15*, 725-741.
Sulieman, M. (1999). Managing the Forest Resources Battlefield: Appreciating Actors' Roles and Realities. In F. a. A. O. (FAO) (Ed.), *Pluralism and Sustainable Forestry and Rural Development* (pp. 245-252). Rome: Food and Agriculture Organization (FAO).
Turner, M. D. (1999). Conflict, Environmental Change, and Social Institutions in Dryland Africa: Limitations of the Community Resource Management Approach. *Society & Natural Resources, 12*, 643-657.
Vedeld, T. (2000). Village Politics: Heterogeneity, Leadership and Collective Action. *The Journal of Development Studies, 36*(5), 105-134.
Veríssimo, A., Cochrane, M. A., Souza Jr., C., & Salomao, R. (2002). Priority Areas for Establishing National Forests in the Brazilian Amazon. *Conservation Ecology, 6*(1), 4.
Wade, R. (1988). *Village Republics. Economic Conditions for Collective Action in South India*. Cambridge: Cambridge University Press.
World Bank. (1988). *World Development Report 1988*. New York: Oxford University Press.