

The Virtue of Conflict: An Institutional Approach to the Study of Conflict in Community Forest Governance

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Source: International Forestry Review, 15(1):122-135. 2013.

Published By: Commonwealth Forestry Association

URL: <http://www.bioone.org/doi/full/10.1505/146554813805927219>

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The virtue of conflict: an institutional approach to the study of conflict in community forest governance

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SUMMARY

Conflict may simultaneously help and hinder the local governance of community forests. Based on 499 observations of forest user groups included in the *International Forestry Resources and Institutions* (IFRI) database, it is shown here that variables which are associated with good community forestry outcomes *also* correlate positively with the occurrence of conflict. This finding seems to be incongruent with the notion that conflict undermines collective action and therewith the potential for sustainable governance of community forests. Individual preferences cannot be easily amalgamated into a group preference. Efforts to articulate group preferences depend on the institutions chosen to reach compromises. These institutions are commonly challenged by those whose preferences are poorly served, adding to the potential for conflict. Therefore it is argued here, that the study of conflict in community forest governance should incorporate rules and rule-making procedures in its analyses.

Keywords: community forestry, conflict, collective action, common pool resources, local governance

Vertus des conflits: approche institutionnelle d'une étude des conflits dans la gestion des forêts communautaires

F. VAN LAERHOVEN et K.P. ANDERSSON

Les conflits peuvent simultanément aider ou frustrer la gestion locale des forêts communautaires. Basée sur 499 observations de groupes utilisateurs des forêts inclus dans la base de données *International Forestry Resources and Institutions* (IFRI), cette étude montre que les variables associées aux bons résultats d'une foresterie communautaire vont également de pair avec la présence de conflits. Cette découverte semble être incongrue, alors qu'il est considéré que les conflits minent l'action collective, et, par conséquent le potentiel d'une gestion durable des forêts communautaires. Les préférences individuelles ne peuvent être aisément amalgamées avec les préférences de groupe. Les efforts pour articuler les préférences de groupe dépendent des institutions sélectionnées pour parvenir à des compromis. Ces institutions sont régulièrement remises en question par ceux dont les préférences ne sont pas bien servies, attisant le feu des conflits. Il est par conséquent démontré ici que l'étude des conflits dans la gestion des forêts communautaires devrait incorporer des processus de règles et de règlementations dans ses analyses.

La virtud de los conflictos: un enfoque institucional para el estudio de conflicto en la gobernanza comunitaria de los bosques

F. VAN LAERHOVEN y K.P. ANDERSSON

Los conflictos simultáneamente pueden ayudar y obstaculizar la gobernanza local de los bosques. Analizando 499 casos incluidos en la base de datos del Programa Internacional de Investigación sobre Instituciones y Recursos Forestales (IFRI, por sus siglas en inglés), se demuestra aquí que las variables que se asocian con buenos resultados de la gobernanza forestal comunitaria también se correlacionan positivamente con la presencia de conflictos. Este hecho parece ser incongruente con la idea de que conflictos socavan la acción colectiva y con ello el potencial de la gobernanza sostenible de los bosques comunitarios. Las preferencias individuales no pueden ser fácilmente agregados y articulados en grupos heterogéneos. Los esfuerzos para articular las preferencias del grupo dependerán de las instituciones elegidas del grupo. Estas instituciones son comúnmente impugnadas por aquellos cuyas preferencias están mal atendidas, aumentando el potencial para el conflicto. Por lo tanto, se argumenta, que el estudio de los conflictos en la gobernanza forestal local debe incorporar reglas y los procedimientos de cómo y por quienes fueron creadas estas reglas.

INTRODUCTION

The actors involved in the management of common pool resources (CPRs) represent roles, positions, skills, values and interest that are not necessarily compatible, and therefore potentially conflictive (Agrawal and Gibson 1999, Anderson *et al.* 1999). Also in community forestry different forest uses may conflict (Suliman 1999, Samndong and Vatn 2012).

Disagreement and subsequent conflicts between individual members and sub-groups within a group of CPR users are routinely reported in the literature (e.g. Ravikumar *et al.* 2012, Ostrom 1990, Vedeld 2000, Wade, 1988)¹. However, conflictive CPR user groups do not necessarily fail to manage their resource successfully over an extended period of time (Gibson *et al.* 2000, Ostrom 1990). This may seem counter-intuitive, since CPR management requires collective action, which can be argued to be seriously hindered by disagreement and conflict (Olson 1965). This study departs from this apparent paradox: If conflict undermines collective action, and if collective action in turn is indispensable for the sustainable governance of the commons, why is it that we observe many examples where long-enduring CPR governance goes hand-in-hand with reports of conflicts between its users? It is argued here that the articulation of disagreement and the subsequent potential of conflict within resource user groups are both inherent and necessary components of CPR self-governance arrangements, *and* a factor that complicates the organisation of the collective action that is necessary to prevent over-exploitation of a commonly governed resource. Conflict may at the same time be indispensable and unwanted for the governance of the commons.

This study particularly explores this paradox with specific regards to community forestry. It challenges the view that conflict and sustainable community forest governance are incompatible. In doing so, this paper turns to the crucial role of institutions for collective action and public choice in coordinating CPR governance, and tests the proposition that conflict may facilitate the articulation of heterogeneous or changing preferences. Empirical evidence is provided indicating that the more successful community forest user groups are also the ones that have experienced significantly more internal conflicts. This apparent anomaly is consequently disentangled in the analysis. For the preliminary analysis, data collected by a network of scholars associated with the *International Forestry Resources and Institutions* (IFRI) research program is used.

The claims resulting from the analysis first and foremost regard community forest governance. However, other forms of CPR governance share striking similarities with community forest governance, when it comes to the potential role of conflict. In irrigation systems, the interests of tail-enders

differ from those of head-enders² (Janssen *et al.* 2011, Ostrom 1992, Ostrom and Gardner 1993). In agricultural systems, cattle ranching is potentially conflictive with crop cultivation (Nygren 2000, Wade 1988). In ground water basins, city size and location may influence the potential intensity and relevance of opposing interests (Ostrom 1999 (reprinted)). In watersheds, classic conflicts stem from the difference between up- and downstream areas (Kerr 2007, Lubell *et al.* 2002, Ravnborg and del Pilar Guerrero 1999, Sneddon 2002), or from the different preferences of residential and agricultural water users (Bardhan and Dayton-Johnson 2002). In fisheries, the open access character of the resource bears the potential of conflict (Degen *et al.* 2000, Muawahana *et al.* 2012), as does stock mobility (Schlager *et al.* 1994). More generally, the objectives of rich and the powerful may not align with the needs and demands of the poor and the marginalised (Baland and Platteau 1999, Golooba-Mutebi 2004, Johnson *et al.* 2005, Andersson *et al.* 2009; Sunam and McCarthy 2010). Therefore, some of the findings also refer to CPR governance in general (see Van Laerhoven and Berge 2010).

COMMUNITY FORESTRY, COLLECTIVE ACTION AND CONFLICT

Community forests are CPRs and as such they produce goods that are characterised by the fact that one individual's use subtracts from another person's use (like private goods, unlike public goods), and by the fact that it is impossible, difficult or prohibitively expensive to exclude others from appropriating the good (like public goods, unlike private goods) (Ostrom 2005). Although CPRs are under specific conditions vulnerable to the tragedy of the commons (Hardin 1968), it is now understood that there are many ways for CPR users to avoid resource over-exploitation and subsequently its degradation or disappearance (Ostrom 1990, van Laerhoven and Ostrom 2007, Berge and van Laerhoven 2011). Scenarios shown to result in sustainable CPR governance – community forest governance included – assign a protagonist role to collective action – e.g. the collective investment in the crafting and enforcement of rules regarding the appropriation of resource units and the provision of a sustainable and productive resource system.

In her later work on social-ecological systems, Ostrom (2007) stresses that patterns of interaction and outcomes – conflict included – result from using particular sets of rules for the governance, ownership, and use of a resource system and specific resource units. In other words, rules regarding the appropriation of resource units, access to the resource

¹ Much political ecology literature suggests that conflict between local community-type actors and larger power dynamics shape natural resource governance (e.g. Martinez-Alier 2002; Gritten and Mola-Yudega 2010). However, the focus of this paper is primarily on local-scale within-group conflict and does not address macro-level or inter-level conflicts.

² Water users at the upstream part of the irrigation system (i.e. head-enders) can more easily intercept extra water than the tail-enders.

system, the allocation of contributions (e.g. to provision or monitoring), authority, and resource system boundaries, will inspire disagreement, dispute, or outright conflict³.

The likelihood of the emergence of sustainable forms of collective action hinges on a group's capacity to credibly neutralise the free rider (Olson 1965). Trust constitutes a recognised force to do this (Henry and Dietz 2011, Cook *et al.* 2005, Farrell and Knight 2003, Hoffman *et al.* 2002, Rothstein 2000). Since conflict undermines trust, the likelihood for sustainable CPR governance is diminished, so the argument goes. Ostrom (1990) recognises the importance of resource users having cheap and easy access to conflict resolution mechanisms as one of the eight institutional conditions (so-called design principles) for successful self-governance of CPRs.

Solving conflicts in practice: Resolution, management, and transformation

External actors, such as NGOs or government agencies, often play prominent roles in local community forestry activities (Barnes and Van Laerhoven 2013). These actors employ different approaches to conflict. A distinction can be made between resolving, managing, and transforming conflict. *Conflict resolution* theorists (e.g. Azar and Burton 1986) argue that people cannot compromise on their fundamental needs. It may however be possible to transcend conflicts through interventions by skilled (but powerless) third-parties who can help reframing positions and interests, in such a way that courses of action appear acceptable to the parties in dispute. Alternative dispute resolution (ADR) techniques merit a special mention. ADR refers to approaches to conflicts based on face-to-face contact meant to reach mutually acceptable resolutions. ADR intervenes between conflicting parties to promote reconciliation, compromise, or understanding. Assistance is aimed at either settling ongoing disputes or establishing rules to govern future behaviour (O'Leary and Bingham 2003, O'Leary and Raines 2001). *Conflict transformation* theorists (e.g. Lederach 1995, Bush and Folger 1994) recognise that constructive conflict can act as a catalyst for legitimate change. Practical approaches to conflict should therefore look for ways to transform hostile to cooperative modes. The transformation of conflicts does not focus on third-party mediation, but on engaging with people within the setting, aiming to transform relationships, interests, discourses, and constitutions that support the continuation of violent, disruptive conflict. *Conflict management* theorists (e.g. Bloomfield and Reilly 1998) view the resolving conflict as an unrealistic goal. The focus of conflict management is not on the removal of conflict, but on dealing with conflict in a constructive way – for example through the development of appropriate institutions.

Vicious conflicts that undermine sustainable governance

Many practical approaches to conflict in a community forestry setting tend to lean on a conflict resolution model and view conflict as a messy hindrance resulting in dysfunctional systems. The central premise in many such approaches is that conflict can and must be solved, or else the sustainable governance of the resource in question is in jeopardy. Disagreement needs to be settled prior to agreement about the institutional arrangements for CPR management. There is a tendency to view *conflict* and *governance* as separate and only sequentially related: If there is a conflict, it needs to be solved before one can continue with 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* (Black and Watson 2006). Popular tools used by these outsiders include *stakeholder consultation* to arrive at a consensus among forest users, and *zoning* to physically separate different forest resource uses and users from one another.

Several studies on conflict resolution associated with local resource governance report on the attempts of government, NGOs or donor agencies to opt for a participatory approach to the achievements of their goals (Beierle and Konisky 2000, Buchy and Hoverman 2000, Gregory *et al.* 2001, Lane 2001, Proctor 1998). These agencies see themselves confronted with a dilemma when the implementation of participatory approaches turns out to lead to overt conflicts and disagreement between the various project or program stakeholders. A typical remedy then, is to resort to third party mediation. 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 analysed, 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. Many scholars refer to the importance of facilitating stakeholder consultations as a tool to avoid and to resolve conflict (Brown and Ekoko 2001, Hildyard *et al.* 1999, Ravnborg and del Pilar Guerrero 1999, Sandström *et al.* 2003, Schusler *et al.* 2003).

A popular solution to conflict is the accommodation of pluralist interests through some form of exclusive spatial delineation of different resource uses that are potentially conflictive (e.g. zoning). In West Africa the concept of *gestión des terroirs* is based on participatory stakeholder consultations that lead to the formulation of regional development plans that recognise different zones for different land uses (Grey 2002, Turner 1999). In addition, in the context of the management of protected areas “buffer zones” are used to mitigate conflictive resource uses (Fearnside 1999, Goldman 2003, Maikhuri *et al.* 2001, Veríssimo *et al.* 2002).

³ O'Leary and Bingham (2003:5) state that “conflict emerges from differences in values and worldviews, conflicting interest, and uncertainty that surrounds various courses of action.” In this paper, a more narrow approach views conflict in direct relation with the process of crafting and enforcing rules that regard the appropriation of units from a resource system, and the contribution to the provision of that resource system. An acknowledged problem of this approach is that we may miss out on conflicts that are not explicitly related with institutions associated with appropriation and provision problems.

Virtuous conflicts with a positive social function

Conflict is studied in many different disciplines, including for example sociology, psychology, political science, law, history, international relations, economics, and business organisation. Reviewing all the references to conflict in these particular literatures is beyond the scope of this paper. This overview of relevant concepts focuses on the extent to which literatures have taken on board the notion that conflict can have positive social functions. Besides the *vicious* character of conflict as highlighted in the section above, conflict has been recognised for its potentially *virtuous* effect, as well⁴. Deutsch (1969) for example, differentiates between *destructive* and *constructive* conflict. Whereas destructive conflicts may lead to dysfunctional cooperation where substantive issues are lost out of sight, constructive conflicts eventually balance the interests of parties to maximise the opportunities for mutual gains. Himes (1980) defines conflict as purposeful struggles between collective actors over goals that can be perceived as either *legitimate* or *illegitimate*. He points to the social functions of legitimate conflict and moves away from the normative notion that the consequences of conflict are always harmful and undesirable. An example is provided by the environmental movement literature, where legitimate action is seen to arise from conflict with political and economic elites over land use and resource extraction (e.g. Schwarzman *et al.* 2010; Chase-Smith 2005; Fried 2000). Coser (1956) distinguishes *realistic* from *unrealistic* conflicts. Contrary to realistic conflicts, unrealistic conflicts are not a means but an end in itself. They are not oriented at goal attainment, but respond to frustration. He recognises the positive potential of realistic conflict, and argues that both cooperation and conflict play an important role in group formation. In sum, when conflict is not *destructive* (e.g. leading to violent clashes) (Deutsch 1969), *illegitimate* (Himes, 1980), or *unrealistic* (Coser 1956) conflict can be argued to have a positive effect on community forest governance processes and outcomes.

An institutionalist approach to conflict in community forestry

A particular, potentially positive effect of conflict, regards the role it can be argued to play in the development of institutions, or, *rules* and *rule-making procedures* (Andersson and Van Laerhoven 2007, Bartley *et al.* 2008). “*Institutions are the rules of the game in a society, or more formally, are the humanly devised constraints that shape human interaction*” (North 1990:3). In a setting of community forest governance, institutions refer to *appropriation* rules (e.g. rules that regulate harvesting), and *provision* rules (e.g. rules that regulate the development and maintenance of the forest resource system) (Ostrom 2005). Institutions mitigate collective action problems, commitment and enforcement problems in particular. However, they are also used as a weapon of coercion and redistribution that political ‘winners’ use to pursue their interests at the expense of political “losers” (Moe 1990). Knight

(1992) stresses the discriminate advantages of institutions: Some segments of society benefit disproportionately from institutional arrangements. Institutional dynamics are determined either by enforceable exchange of benefits or resources among private actors, or by competition over influence in decision-making.

Often, there is not a single way to accommodate multiple preferences about community 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. Furthermore, once a more or less stable consensus about forest 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.

Arrow (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, Pareto optimality, independence from irrelevant alternatives, and non-dictatorship. *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. Many have studied this intriguing discrepancy, and ended with institutions – i.e. the operational rules and rules about rule-making – as variables that explain variation in the attributes and possible effects of conflict (Hall and Taylor 1996, Shepsle and Bonchek 1997).

How are institutions and conflict over community forest use related? When forest governance decision-making autonomy, to a greater or lesser extent, is devolved to the actual users of that forest, one can expect something similar to what Arrow describes 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 consist of individuals with different preferences.

Imagine the following stylised and simplified situation: Three persons [A, B, C] have different preferences over the alternative forest uses: grazing (G), logging (L), and farming (F) (see table 1). 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 during a given season, the amount to be paid in contribution, the time to be spent on collective forest maintenance tasks, etc.

Preferences in the example are extremely heterogeneous. There is no majority that shares the same first preference, and alternative voting mechanisms (e.g. plurality runoff, a sequential runoff, or a Borda count) would still result in a

⁴ For a good overview of dichotomising conflict in forestry as either positive or negative, see Yasmi *et al.* 2009.

TABLE 1 Preference rankings

Ranking	Actor A	Actor B	Actor C
1 st preference	Grazing	Logging	Farming
2 nd preference	Logging	Farming	Grazing
3 rd preference	Farming	Grazing	Logging

draw. One could alternatively resort to a round-robin tournament, where each alternative is sequentially pitched against the other. Nevertheless, it turns out that the winner in such a contest depends on the agenda that determines the sequence of voting (see table 2).

In addition, as it turns out, individuals can vote strategically, to have their preference win. If actor C has agenda setting power, and picks Agenda 1 (for obvious reasons), actor A (who really does not want any farming in the forest) could vote for ‘Logging’ when this alternative is pitched against ‘Grazing’ in the first round (instead of his real preference, ‘Grazing’). This would lead to ‘Logging’ being pitched against ‘Farming’ in the second round, and beating ‘Farming’⁵.

In general, the institutionalist literature shows us that any choice environment in which (boundedly) rational individuals with heterogeneous preferences must decide on a coherent group preference is potentially conflictive. First, there may be multiple majorities. Second, there are multiple ways of preference revelation through either sincere or sophisticated voting. Third, there are multiple ways for groups to decide by means of different voting mechanisms. Under such circumstances, institutions matter. No matter what the outcome of

the collective choice process, there will always be reason for those whose preferences are poorly served to feel disgruntled, and to challenge that outcome. Consensuses are unstable, contestable and can be expected to be challenged (Arnold 1990, Baumgartner and Jones 1993, Gormley Jr. 1986).

What does this imply for the validity of solutions that involve third party mediation, stakeholder consultation and zoning? First, third party intervention cannot be expected to lead to anything, unless a set of rules were imposed – leading to problems related with legitimacy. Second, stakeholder consultation would not really lead to a solution either, since there is no real and definitive solution to most conflicts. Third, zoning would help solving the problem only if it would result in the parcelling-up of the CPR into (semi) privatised lots. McKean (2000) has laid out why this may not always be a good idea: A production system may not always be amenable to physical division, communities may prefer a joint form of management due to the uncertainty of the productivity of any particular section of the resource system, 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, and administrative support to enforce property rights to individual parcels may not be available.

AN ALTERNATIVE FRAMEWORK FOR THE STUDY OF CONFLICT IN COMMUNITY FOREST GOVERNANCE

March and Olsen (1984), in a study on organisation management, conclude that empirical research seems to indicate

TABLE 2 Alternative voting sequences in a round-robin tournament

	1 st round in round-robin tournament	2 nd round in the round robin tournament (i.e. winner from round 1 is pitched against the remaining preference)	And the winner is...!
Agenda 1: (The agenda preferred by Actor A who prefers Grazing)	Logging vs. Farming => Logging preferred over Farming by actors A and B Farming preferred over Logging by actor C Logging wins	Logging vs. Grazing => Logging preferred over Grazing by actor B Grazing preferred over Logging by actors A and C Grazing wins	Grazing
Agenda 2: (The agenda preferred by Actor B who prefers Logging)	Farming vs. Grazing => Farming preferred over Grazing by actors B and C Grazing preferred of Farming by actor A Farming wins	Farming vs. Logging => Farming preferred over Logging by C Logging preferred over Farming by actors A and B Logging wins	Logging
Agenda 3: (The agenda preferred by Actor C who prefers Farming)	Grazing vs. Logging => Grazing preferred over Logging by actors A and C Logging preferred over Grazing by actor B Grazing wins	Grazing vs. Farming => Grazing preferred over Farming by A Farming preferred over Grazing by B and C Farming wins	Farming

⁵ 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

that “*conflict is endemic and that it tends to be interminable rather than settled by prior arrangement*” (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 decentralised, 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 institutional arrangements that can be contested at all times. There will always be individuals with a legitimate reason to challenge these arrangements. Challenging institutional outcomes can be done for example by reformulating or reframing 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) or by seeking alternative venues for decision- and rule-making. 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.

The conflict level at any stage (either when formulating the initial operational rules⁶ or during the process of readjusting them) will be co-determined by the *biophysical and material conditions of the forest resource* itself. Is the forest characterised 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 even 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? For example, conflict levels and types in forests characterised by scarcity and resource-unit productivity that is unevenly distributed in time and place, can be expected to differ from conflicts levels and types in forests where productivity is abundant, all of the time and everywhere.

The level of conflict will also 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 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 or monitoring-related work, represents different marginal costs to the family with only one son than to a family with five sons.

Finally, 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 every-day rules that direct, guide, or constraint individual behaviour, and, collective-choice rules, that is, the rules that determine who is eligible to create and enforce the operational rules, and what the procedures are to do that. Operational rules stipulate for example what can be harvested, by whom, in what quantities, when and where? Alternatively, what activities can be undertaken in the CPR, where, when, and by whom? Collective-choice rules set the boundaries for challenging operational rules.

Institutional development is a dynamic process; the use of the resource in itself 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 to 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 forest resource use in particular will be contested as time passes, both by individual group members and by external authorities. Figure 1 (based on the Ostrom’s (2005) Institutional Analysis and Development (IAD) framework) graphically captures these dynamics.

RESEARCH DESIGN

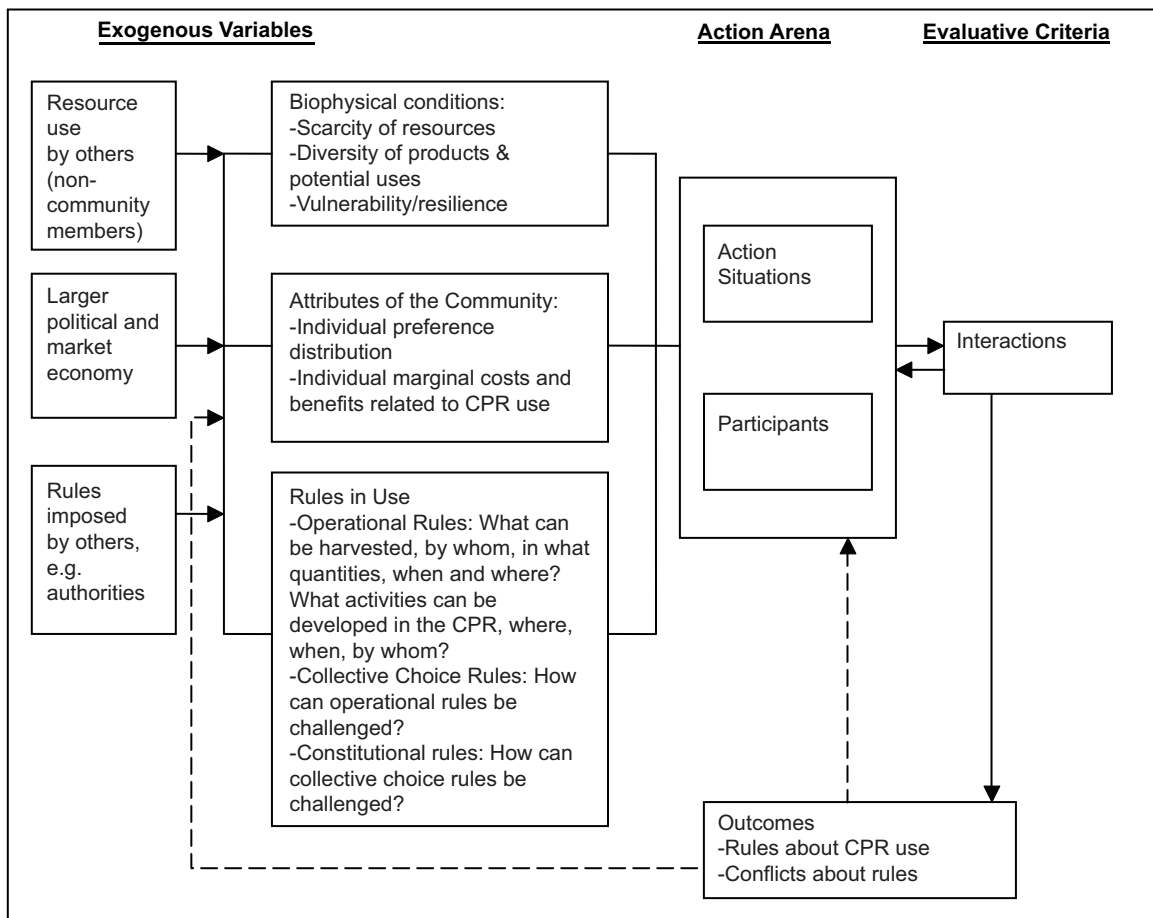
Conceptual model and hypotheses

An implicit working hypothesis that appears to be underlying many donor interventions and environmental policies is that conflict is irreconcilable with sustainable community forest governance (see discussion in section 2). In this article the validity of this claim is challenged. Not only are conflict and sustainable community forest governance compatible with each other. The achievement of sustainable governance of community forest may often require inter-group conflicts in order to change the existing (non-sustainable) governance arrangements.

The literature mentions many explanatory variables that presumably explain variation in CPR governance performance (Agrawal 2001, Baland and Platteau 1996, Kerr 2007, Wade 1988), that are implicitly or explicitly related with Ostrom’s so-called design principles (Ostrom 1990). Without pretending to present an exhaustive overview of these variables, the main predictors that empirical studies have found to correlate strongly with good community forest governance are selected for this study. These variables include *monitoring*

⁶ Operational rules are the every-day rules that guide, direct, or constrain individuals in their behavior.

FIGURE 1 Institutional Analysis and Development Framework and “conflict”



(Gibson *et al.* 2005), a user group’s *autonomy* to craft its own CPR governance rules (Hayes 2006), a user group’s amount of so-called *social capital*⁷ (Pretty 2003), and a group’s level of *organisation* (Gibson *et al.* 2005).

Collective action in the form of group engagement in monitoring activities increases the likelihood of good community forest governance arrangements (i.e. the resource stays intact over an extended period of time). The likelihood of groups engaging in this particular form of collective action increases when they score high on autonomy, social capital and organisation, respectively. This expectations is empirically confirmed by Van Laerhoven (2010).

First, in general terms, if conflict and community forest governance would mix as badly as suggested in the literature, one would expect to observe a negative correlation between these two variables. *Secondly*, one would expect a negative correlation between conflict levels on the one hand, and the reported levels of engagement in monitoring, on the other. Thirdly, non-compatibility of conflict and good community forest governance should result in negative correlations between conflict on the one hand, and autonomy, social

capital and organisation, on the other. These theoretical expectations are summarised in figure 2.

Data and data collection methods

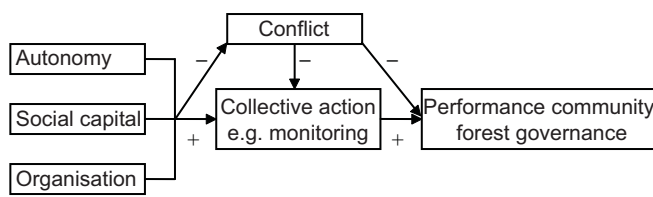
The *International Forestry Resources and Institutions* (IFRI) research program is a global, interdisciplinary research network that currently links scholars at eleven research centres in ten countries. IFRI scholars collaborate to gather systematic data on local forest governance systems around the world. IFRI, by means of a set of carefully designed standard research protocols focuses on the collection of field data and analysis of the human-ecological interface. The standardisation of data collection allows for meaningful comparison. The IFRI database integrates biophysical with social data about factors that affect forest ecosystem dynamics in (Center for the Study of Institutions Population and Environmental Change (CIPEC) 2002, Ostrom and Wertime 2000 (1994)).

The dataset used for this study includes information on 240 forests, 499 forest user groups, in 15 different countries⁸. IFRI defines a forest as encompassing at least 0.5 ha, used by

⁷ Putnam (1995) defines social capital as “features of social organization such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit”

⁸ Bhutan (6), Bolivia (24), Brazil (3), Colombia(1), Ecuador (1), Guatemala (8), Honduras (1), India (47), Kenya (12), Madagascar (9), Mexico (7), Nepal (76), Tanzania (8), Uganda (30), and the United States (7)

FIGURE 2 Conceptual framework



at least three households, and governed by the same legal structure (CIPEC, 2002). The overwhelming majority of the forest user groups in the data set had been using the forest for at least 10 years or (much) longer at the time of data collection. Data are gathered by inter-disciplinary research teams that on average spend 2–4 weeks in each site, using a combination of qualitative research methods and forest mensuration techniques.

Conflict can be argued to play different roles over time – e.g. it may be a prerequisite for establishing institutions for collective action, but might be less beneficial for maintaining them. The snapshot-nature of much of the IFRI data prevents the capturing of the time dimension of conflict. Another acknowledged limitation of these data is a possible selection bias that would lead to failed governance arrangements being systematically screened out of the dataset (see Hayes 2006; Gibson *et al.* 2005). A view on the role of conflict in these failures is subsequently not offered.

Operationalisation of the variables

From the IFRI database, information on the occurrence of *conflict* is retrieved by looking at the answer to the question “Has the group faced any issues engendering conflict, during

the last two years?” *Community forest governance performance* is measured by means of a proxy indicator that is based on the estimation of the professional forester in the IFRI team of the forest density, relative to similar forests in the same area. When forest density is assessed by her or him as being about average, or (very abundant) it is coded as performing well. If on the other hand the density of the forest is considered to be relatively sparse, the forest in question is coded as performing poorly⁹. *Social capital* is measured by recording whether or not the community has been involved in forms of collective action that are not related with forest use, in particular, cooperative forms of harvesting, processing, and/or marketing (see also Gibson *et al.* 2005). The remaining variables – *autonomy* and *monitoring* – are measured by deriving from the IFRI database the answers to the questions “Is the user group responsible for making rules about forest use?” and “Does the forest user group engage in monitoring activities?”, respectively. Table 3 provides the descriptive statistics of the variables associated with user groups and their relationships with forest resources, as specified in the conceptual framework. Chi-square tests of independence are used to calculate correlations between the variables (see also Gibson *et al.* 2005 and Hayes 2006 who use similar techniques when analysing the same dataset).

EMPERICAL FINDINGS: ARE CONFLICTS AND SUSTAINBLE COMMUNITY FOREST GOVERNANCE COMPATIBLE?

A first intriguing observation regards the fact that contrary to the expectation, the majority of the community forests (70%) do *not* report to suffer from conflicts! This fact is not in line

TABLE 3 Descriptive statistics of variables used in tests

Variables	Description	N	Min	Max	Mean	Std. Dev.
Conflict	Has the group faced any issues engendering conflict, during the last two years? (yes=1)	470	0	1	0.30	0.458
Community forest governance performance	Is the vegetation density of the forest used by this user group sparse (x=0) or dense (x=1)?	478	0	1	0.65	0.477
Autonomy	Is the user group responsible for making rules about forest use? (yes=1)	478	0	1	0.38	0.486
Monitoring	Does the forest user group engage in monitoring activities? (yes=1)	499	0	1	0.50	0.500
Social capital	Does the user group engage in forms of collective action not related to forest governance? (yes=1)	486	0	1	0.62	0.487
Organisation	Is the user group formally organised? (yes=1)	492	0	1	0.39	0.488

⁹ It is acknowledged that forest density can be affected by other factors than forest governance practices alone. However, given the significant impact of governance on forest conditions we assume that the impact of cases where forest density is determined by other than governance-related factors will be filtered out due to the large number of observations. This assumption may of course be challenged, for example via research designs based on qualitative case studies.

with Hardin’s prediction that individuals will fail to get together in an effort to govern a commonly owned resource. However, it is congruent with the insights gained in commons scholarship that sustainable forms of self-governance are in fact possible. From this result alone, it appears that conflict is not always present in all efforts to govern forest resources. This begs the question as to what extent conflict is associated with poorer forest conditions, and worse governance outcomes

Where conflict does occur, it does not seem to significantly undermine forest conditions. Forest user groups that harvest from forests where the vegetation density is about average or (very) abundant relative to similar forests in the same area, report conflict significantly more often than forest user groups that harvest from forests that have relatively sparse vegetation (33% compared to 23%, respectively). Of course, this correlation does not reveal much about the main causal direction. However, if one were to argue that forest conditions determine the level of conflict (rather than the other way around) one would subsequently expect to find more conflict in forests with sparse vegetation as scarcity would trigger conflict (see for example Homer-Dixon 1994). This appears not to be the case. Based on the odds ratio, forest user groups that seem successful at maintaining their resource in good conditions are 1.68 times more likely to experience conflict than groups that have more degraded forests (see table 4).

There is a significant association between the level of *monitoring* that a forest user group engages in and the *level of conflict* that this group experiences. Based on the odds ratio forest user groups that monitor are 2.19 times more likely to experience conflict than groups that do not (see table 5). It is assumed here that through monitoring the pro-active focus on rule violation increases the chance of clashes between rule-abiding monitors and rule breakers. Given the positive correlation between monitoring and good community forest governance (Pearson’s chi square=8.48), the presence of

conflict in groups that actively monitor does not appear to be problematic for achieving good governance outcomes.

There is a significant association between the autonomy that a group has to govern its commons and the level of conflict that this group experiences in the doing so. Forest user groups that have governing autonomy are 2.33 times more likely to experience conflict than groups that have no such autonomy (see table 6). It is assumed here that 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. Given the positive correlation between autonomy and good community forest governance (Pearson’s chi square=4.32), conflict in autonomous groups does not appear to be problematic for achieving good governance outcomes.

Another strong candidate for explaining CPR governance performance – i.e. social capital – is again positively correlated with conflict. When a user group reports to engage in multiple forms of collective action (i.e. besides monitoring) the likelihood that this group also reports to have experienced conflict, increases. Forest user groups that possess social capital are 2.55 times more likely to experience conflict than groups that do not (see table 7). It is assumed here, that the more often individuals with varying preferences come together to cooperate to produce a commonly desired outcome, the more likely it is that these individuals will quarrel. However, also here, we observe that in spite of the increased likelihood of conflict, a shared history of cooperation correlates positively with forest governance performance (Pearson’s chi square=4.87).

A user group that is formally organised is not more likely to keep a lid on its internal conflicts. To the contrary, organised groups report relatively more conflict than groups that

TABLE 4 Conflict and governance outcomes

	no conflict	conflict
Relatively sparse vegetation	116	34
Relatively dense vegetation	189	93

$\chi^2(1) = 6.23, p < 0.005$
 Odds_{conflict, successful CPR mgmt} = 93/189 = 0.49
 Odds_{conflict, unsuccessful CPR mgmt} = 34/116 = 0.29
 Odds ratio = 0.49/0.29 = 1.68

TABLE 5 Conflict and monitoring

	no conflict	conflict
No monitoring	177	48
Monitoring	150	89

$\chi^2(1) = 14.09, p < 0.001$
 Odds_{conflict, monitoring} = 89/150 = 0.59
 Odds_{conflict, no monitoring} = 48/177 = 0.27
 Odds ratio = 0.59/0.27 = 2.19

TABLE 6 Conflict and autonomy

	no conflict	conflict
No autonomy	217	66
Autonomy	100	71

$\chi^2(1) = 16.76, p < 0.001$
 Odds_{conflict, autonomy} = 71/100 = 0.71
 Odds_{conflict, no autonomy} = 66/217 = 0.30
 Odds ratio = 0.71/0.30 = 2.33

TABLE 7 Conflict and social capital

	no conflict	conflict
No social capital	136	32
Social capital	180	108

$\chi^2(1) = 16.98, p < 0.001$
 Odds_{conflict, social capital} = 108/180 = 0.60
 Odds_{conflict, no social capital} = 32/136 = 0.24
 Odds ratio = 0.60/0.24 = 2.55

TABLE 8 Conflict and organisation

	no conflict	conflict
No organisation	207	66
Organisation	117	66

$$\chi^2 (1) = 7.53, p < 0.005$$

$$\text{Odds}_{\text{conflict, organisation}} = 66/117 = 0.56$$

$$\text{Odds}_{\text{conflict, no organisation}} = 66/207 = 0.32$$

$$\text{Odds ratio} = 0.56/0.32 = 1.80$$

are not organised. Groups with formal organisation are 1.80 times more likely to experience conflict than groups without organisation (see table 8). Again, there is no evidence that formal organisation stands in the way of good community forest governance, as both variables are positively correlated (Pearson's chi square=3.98).

Summarising, when a user group has what it takes to govern its community forest sustainably (i.e. autonomy, social capital, and organisation), it is *also* more likely to confront issues that engender conflict.

What do community forest user groups quarrel about? IFRI data show that conflict in community forest governance is not necessarily *directly* related with conflicting interests. Heterogeneity in terms of ethnicity, religion and/or caste in itself is not significantly correlated with 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 significantly related to conflict, in our data. Saliency, 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, either.

What then are the direct causes of conflict? In the case that forest users report to have faced an issue that engendered conflict, the IFRI protocol asks them to describe the nature of that conflict. Table 9 provides a typology of the conflicts that are recorded in the IFRI database.

The IFRI protocol also inquires about the level of disruptiveness of the conflict in question – has the conflict been channelled in ways that are not disruptive of normal activities or not? An analysis of the combined data reveals that 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 – or at least, the direct – sources of conflict (see figure 3). Conflict, then, seems to be closely tied to the governance process itself. Users who try to create and enforce socially binding agreements related to the access to and use of forest resources, are likely to encounter conflict along the way.

CONCLUSIONS

The analysis finds that one thing that most scholars agree upon as being an almost certain escape from the tragedy of the commons – i.e. local monitoring – is *also* positively correlated with the occurrence of conflict – i.e. the factor that is thought to undermine community forest governance performance. This observation calls for a more nuanced approach to the study of conflict in local resource governance – an approach that recognises that conflict can both help and hinder community forest governance. Forests are spaces where communities both quarrel and come together to cooperate.

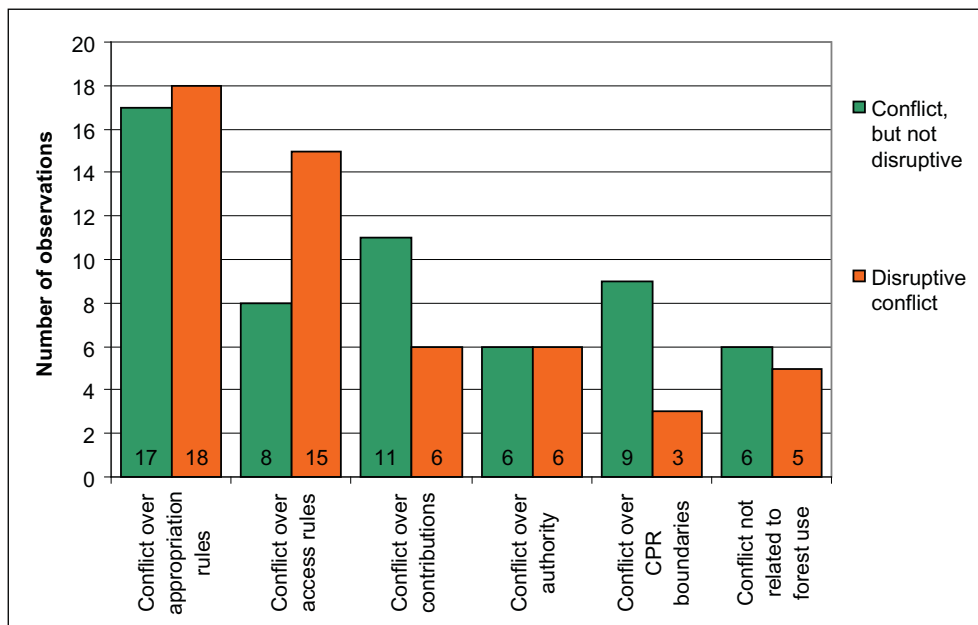
An acknowledged caveat that applies is related to the methodological approach employed in this research. Firstly, the statistical models used for the analysis are fairly basic. Working with the same IFRI data, Gibson *et al.* (2005) argue that due to the non-experimental nature of the set, trying to estimate a structural regression model is complicated. Therefore, they choose to perform simple chi-square tests of independence, similar to the ones presented in this study. The important variables used for the analysis, here (i.e. monitoring, autonomy, social capital, and organisation) are likely to be related, requiring more complex models to understand the details of how conflict, collective action, and local forest governance affect outcomes in specific contexts. Second, by opting for an analysis based on a large number of observations, general *patterns and trends*, and to a certain extent, *causal relations* may be tested. Further, complementary research on the issue of the role of conflict in community forest governance must include qualitative inquiries on causality, with a focus on *context-particular explanations* and the specifics of *causal mechanisms* (Gerring 2004).

The study of conflict in community forest governance conventionally focuses on conflict *resolution*; Conflict is perceived as a signal of the absence of consensus. This in turn

TABLE 9 Types of conflict

Type of conflict	Description
Conflict over CPR boundaries	Where does the CPR begin, and where does it stop?
Conflict over access rules	Who can use the CPR, and who cannot?
Conflict over appropriation rules	How much can be harvested, when, and how?
Conflict over authority	Who has the authority to make decisions regarding the CPR and its use?
Conflict over contributions	What do participants need to contribute to CPR governance in terms of time, cash or kind?
Conflict not related to CPR governance	

FIGURE 3 Conflict type distribution



is expected to 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* and *resource scarcity*. In an attempt to solve the conflict, 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.

This study points out that this approach has some important shortcomings. First, conflict and sustainable community forest governance are not necessarily incompatible. The self-governance of forest resources inherently requires the articulation of, and negotiation about individual preferences. Contrary to centralised resource governance – where rules may be imposed – autonomous rule making, self-organisation and the active involvement in multiple forms of collective action brings opposing interests out in the open. We observe that autonomous, well-organised groups that are endowed with high levels of social capital are both more likely to experience conflict *and* more likely to be successful at governing their CPR.

The conceptual framework that is proposed in this article has been shown to be useful in diagnosing the role of conflict in local resource governance. It urges analysts to focus on the attributes of the user group (e.g. heterogeneous preferences), and on the attributes of the resource (e.g. scarcity). It is shown in this study that it appears crucial that the study of conflict in a context of community forestry in particular, and CPR governance in general, includes an explicit emphasis on rules and rule-making procedures. Conflict is 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 obstruct this process if all types of conflict are viewed as something that ought to be fought. It is important to learn 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.

Policy makers may be reluctant to grant rule-making authority to communities when this appears to increase the likelihood of conflict. However, from this study, an important theme for the conflict research agenda emerges. Research needs to provide tools to distinguish between virtuous and vicious types of conflict. The answer to the question what sets one conflict apart from another, is tied to the study of rules and rule-making procedures.

ACKNOWLEDGEMENT

We greatly acknowledge the support of the International Forestry Resources and Institutions (IFRI) research program at the University of Michigan, and its collaborating research centres. Krister Andersson acknowledges financial support from the National Science Foundation (grant SES-648447, DEB-1114984, and BCS-0527165). We thank Will Barnes for language support. Valuable comments made by three anonymous reviewers are highly appreciated.

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