INSTITUTIONALIZATION OF CONFLICT CAPABILITY IN THE MANAGEMENT OF NATURAL RESOURCES

(Theoretical perspectives and empirical experience in Indonesia)

Yurdi Yasmi

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-- Dedicated to my beloved wife Nike and our son Andi --

Table of contents

List of tables

List of figures

Preface

Although I was brought up in Sumatra where one of the most pristine tropical forests is situated, my first experience working in the forest only began in 1996 when I did my field practical for my first degree at Bogor Agricultural University. I spent two months with a timber company in central Sumatran forest, with the intention to learn how sustainable forest management (SFM) is carried out by a particular forest concession holder. I knew from the classroom that in Indonesia, logging was regulated by a so-called "selective cutting and replanting system". In principle this system required every concession holder to carry out logging in accordance with sustainable guidelines. Community development was part of the obligation of concession holders in which they were required to help local communities in improving their economy, developing village infrastructure and providing opportunities for employment. With all this knowledge, I was eager to see how things worked in the field.

Upon my arrival at the company's base camp deep inside the forest, I started to realize that regulations were not always followed. The company had many "dirty tricks" including bribing local forest officers such as to allow its non-sustainably logged timber to be sold on timber markets. Non-compliance with rules and regulations was not a problem as it could always be compensated by providing forestry officers with some kind of "gift". I started to realize how prominent role of corruption really was in the timber business. As a young forester, I was frustrated. For me, what appeared to be most striking was the way the company dealt with local communities. In that area local communities collected latex from a particular tree species called *jelutung* (*Dyera costulata*) in order to gain a cash income. This practice had been going on for years and I was even informed that prior to logging operation such activities were being carried out. Sadly, in many occasions they were not allowed to enter the forest. They had to stop collecting this latex in the area that was being logged by the company. Moreover, many *jelutung* trees were cut down and destroyed as a result of heavy machinery logging. The income of local communities was inevitably badly affected. Conflict was a logical consequence. Local communities demanded some compensation from the company. However, at that time such kind of conflict was solved through a military approach. Local communities were confronted with the military that backed the timber company and in the end they could not do much. Opposition to logging was "dangerous" under Soeharto era. After returning to Bogor, I started to realize that there was a big social

issue associated with logging operation in Indonesia – at least my short experience in Sumatra suggested this.

After graduating from the university in early 1998, I worked for the Center of International Forestry Research (CIFOR). I was involved in a number of field tests of SFM criteria and indicators in a number of places in Indonesia. Again, I was confronted by the fact that many concession holders failed to fulfill the minimum required standard for socio-political criteria and indicators. The most notable failure could be attributed to the various social conflicts between logging concessions and the surrounding local communities. These conflicts involved diverse issues including unclear boundary definitions between communal forest and concession area, river pollution due to logging activities, broken promises, etc. At that point, my interest in studying conflict in NRM became even greater than before. I was lucky to get an opportunity to purse an MSc degree at Wageningen University in 2000 and I chose conflict in the co-management of forests as a central theme in my thesis. I went to East Kalimantan for three months to study conflicts between local communities and a logging company, and also between local communities and mining companies. The latter conflict was very intense with a lot of protests and intimidations. Reflecting on the results that I gathered during my fieldwork, I realized that most of the time NRM conflict in Indonesia was not addressed constructively. I noticed that actors involved in conflict found themselves very helpless. They had little capacity to address the conflict. It became clear to me that in the case of local communities vs. the mining company conflict, the use of force was very prominent. As a result, high escalation of the conflict was unavoidable. I also learned that there was little – if any – opportunity that allowed for constructive negotiation to take place. In many NRM conflict situations, stakeholders often find themselves in a deadlock, not knowing how to involve in constructive processes to find a solution.

I was so grateful that I could continue my scientific interest and build up from my previous experience for this PhD. As the book will reveal, I specifically focus on conflict capability, i.e. how stakeholders can develop and institutionalize their capacities to cope with NRM conflict constructively. My exploration on conflict capability in NRM has been extremely enjoyable, particularly as it was full of assistances and encouragements from many individuals and organizations, which I sincerely value.

Wageningen, 29 June 2007
Yurdi Yasmi

1

General introduction

1.1 Problem statement

Natural resource management (NRM) conflict is pervasive, widespread and sometimes can be extremely destructive (Buckles, 1999; FAO, 2000a). It occurs in almost all contexts such as forestry, fishery, land allocation, mining and water management. According to various authors, there is no particular setting where NRM is absolutely conflict-free (Hellstrom, 2001; Daniels and Walker, 2001). In the same vein, Blench (1996) maintains that resource conflict is more prevalent nowadays and that this is not merely an illusion generated by more research. There are more people competing for fewer resources and there are more perceived resource arenas (Kaplan 1994; Homer-Dixon 1999). Moreover, the rapid socio-political changes such as globalization and decentralization have also brought with them enormous conflicting issues for resource management (Schäfer, 2001; Lane, 2003; Brosius et al., 2005). It becomes obvious that NRM conflict stretches across geographical scales and spreads to all corners of the globe (Ostrom, 1990; Lewicki et al., 2003).

The scale of NRM conflict varies extensively from local to international levels. Local level conflicts may arise because particular user groups are excluded from participating in NRM (Matose, 1997; Castro and Nielson, 2001). Conflicts can also emerge if access to certain forest products and benefit sharing are not clearly defined (Engel and Korf, 2005). According to FAO (2000a), conflicts occur if there are contradictions between local and introduced management systems, misunderstanding and lack of information about policy and programme objectives, contradictions or lack of clarity in laws and policies, inequity in resource distribution, or poor policy

and programme implementation. Aside from local level conflicts, NRM conflict can take a wider scope and reach national as well as international levels. Quite often two nations engage in a conflict, for instance, over a shared river or the management of trans-boundary resources (Crow and Singh, 2000; Murdiyarso et al., 2004; Yin and Baek, 2004; Sneddon and Fox, 2006).

Furthermore, there is mounting evidence that NRM conflict can be extremely destructive and damaging. Castro and Nielson (2001: p229), for example, write: "Resource conflicts can sometimes become severe and debilitating, resulting in violence, resource degradation, the undermining of livelihoods, and the uprooting of communities". Their argument is shared by various scholars demonstrating the severe impacts of NRM conflict such as destruction of the socio-political and economic infrastructure, human rights abuses and political instability (Alston et al., 2000; Martinez-Alier, 2001; Wenban-Smith, 2001; Adams et al., 2003). In their seminal work *Violent Environment*, Peluso and Watt (2001) provide a thorough analysis on the magnitude of impacts that NRM conflict can generate. In general, destructive conflict is characterized by a tendency to expand and escalate (Deutsch, 1973). Expansion occurs along the various dimensions of conflict: the size and number of the immediate issues involved, the number of motives and participants implicated on each side of the issue, the size and number of the principles and precedents that are perceived to be at stake, the costs that the participants are willing to bear in relation to the conflict, and the intensity of negative attitudes toward the other side.

Due to the pervasiveness of NRM conflict and its severe impacts, there has been an increased call to address it constructively. While NRM conflict generates many destructive overtones, Castro and Nielson (2003) maintain that such consequences can be minimized and avoided. This view is based on an argument that NRM conflict has also positive transformative power that can trigger learning and improvement in terms of resource governance (Ayling and Kelly, 1997; Walker and Daniels, 1997; Doornbos et al., 2000). Additionally, NRM conflict stimulates stakeholders to continuously find better options for resource management. In that sense, NRM conflict has both negative and positive potentials. The biggest challenge is how constructive aspects of conflict are fostered and how destructive ones are prevented or limited.

To address conflict constructively, three classical approaches are commonly described in conflict literature: conflict resolution, conflict management and alternative dispute resolution (ADR) (Galtung, 1965; Wall and Callister, 1995). These approaches have been applied in different contexts including in NRM. They have different underlying assumptions and objectives although sometimes they are also being used interchangeably (see e.g. Dahrendorf, 1958; Deutsch, 1973; Pruitt and Rubin, 1986). The main assumption of conflict resolution is that every conflict

has to be resolved (Coser, 1967; Zartman, 1991). As a consequence, its main objective is to terminate the conflict as quickly as possible. In contrast, conflict management and ADR embody a rather different assumption. They assume that conflict is complex and can never be entirely resolved (Daniels and Walker, 2001; Bartos and Wehr, 2002). Because complex conflict is difficult to resolve, the main objective of conflict management and ADR is to find a compromise and a negotiated agreement, respectively (Fisher and Ury, 1981; van de Vliert and Kabanhoff, 1990; Susskind et al., 2000).

In the context of NRM, the results of conflict resolution, conflict management and ADR initiatives have been rather mixed (Castro and Nielson, 2003). In many circumstances, NRM conflict continues to escalate and produce negative consequences. As evidence of negative consequences of NRM conflict continues to expand, a number of scholars contend that conflict resolution, conflict management and ADR initiatives have not yet made desirable progress in terms of bringing lasting solutions to various NRM conflicts (Buckles, 1999; FAO, 2000b; Yasmi, 2004). Consequently, it becomes clear that there is an urgent need to find an alternative approach for dealing with NRM conflict. In relation to this, the concept of "conflict capability" was recently introduced, particularly in the field of inter-individual conflict such as in school, factory and commercial companies (Glasl, 1997; 1999). Unlike the conventional approaches, it is described as more than merely the mechanical aspects of addressing conflict. Table 1 summarizes the main assumption and objective of conflict capability in comparison to the traditional approaches mentioned earlier. In essence, conflict capability is described as the ability to address conflict constructively, i.e. desirable positive changes materialize as a result. The underlying logic behind the concept is that conflict is having a constructive force for change and thus its main objective is to prevent destructive escalation.

Table 1.1 Conflict capability and the conventional approaches

Approach	Main assumption	Main objective
Conflict resolution	Every conflict has to be resolved	Terminating the conflict
Conflict management	Conflict is complex and can never be entirely resolved	Finding a compromise
ADR		Negotiated agreement
Conflict capability	Conflict is a constructive force	Preventing destructive conflict escalation

Glasl (1999) points out two basic requirements that must be fulfilled in order to achieve conflict capability: a distinctive conceptualization of conflict and a thorough understanding of conflict escalation. In contrast to the broad conceptualization of conflict as differences in things such as interests, perception and emotions as generally described by the conventional approaches, conflict capability provides a different conceptual delineation of conflict. Arguing that differences are inevitable in almost all social encounters, conflict can only be defined as an experience of impairment as a result of behavior of another actor (Glasl, 1997; 1999). The conceptualization of conflict based on impairment provides a more accurate basis for addressing the conflict. Hence, what needs to be addressed is impairment, not differences. In addition, the concept of conflict capability also requires an understanding of conflict escalation in order to allow the delineation between internal and external capacities for addressing the conflict at different levels of escalation. A thorough understanding of escalation also allows the delineation of the so-called the "point of no return" beyond which the conflict cannot be addressed constructively anymore, so that power intervention is required to stop further destructive consequences. The possession of conflict capability has been recognized as one of the vital aspects for the "survival" of any organization (Zapf and Gross, 2001). In fact, the fruitfulness of the conflict capability model has been shown by a number of studies related to organizational conflicts (e.g. Jordan, 2000; Mason and Rychard, 2005). These studies underscore that a distinct understanding of conflict and its escalation forms a solid foundation for addressing conflict constructively and in turn for the institutionalization of conflict capability.

Against this background, conflict capability seems to offers substantial promises for addressing NRM conflict more effectively. Developing conflict capability in NRM is thus very important due to the pervasiveness of NRM conflict and its prevalent negative consequences as argued earlier. Additionally, with various inherent complexities associated with NRM the development of conflict capability becomes more challenging. For example, NRM involves multiple stakeholder groups who have different "stakes" and perceptions regarding resource use and conservation (e.g. Buckles, 1999; Hellstrom, 2001). Second, most of the natural resources are categorized as "common pool resources" characterized as "open access" with complex institutional arrangements. Third, from an economic perspective they are considered low in terms of excludability (i.e. to exclude others from enjoying the resources is difficult) and partial in terms of rivalry (Ostrom, 1990; 1999; Adams et al., 2003). Fourth, they have similar forms of values attached to them including material and cultural values. Finally, they embrace some common problems and dilemmas such as free-riders, contested legitimacy of governing actors, unavoidable conflict, etc. With all these characteristics, developing conflict capability is both challenging and an inevitable need in NRM.

Nevertheless, the concept of conflict capability has not yet been investigated systematically in NRM. The distinctive conceptualization of NRM conflict and its escalation as the two basic prerequisite for achieving conflict capability remain poorly understood. Given the fact that conflict management and ADR initiatives in NRM have not yet made desirable progress as claimed earlier (see Buckles, 1999; FAO, 2000b) and with all the complexities associated with NRM, pursuing conflict capability may be useful to improve our ability to cope with NRM conflict. Therefore, inspired by the study of conflict capability in the social science context and the fruitfulness of the concept, this particular study was initiated to get a deeper understanding on how conflict capability in NRM can be systematically developed and institutionalized. It is important to mention at this point that according to Ben-Dor (1975: 311) the term "institutionalization" is often interpreted differently, as he states: "… the notion of institutionalization is not entirely clear. It encompasses both behavioral and structural dimensions: it is the process by which organizations and procedures acquire value and stability". In this book, following Barley (1997) and Levitsky (1998) institutionalization of conflict capability is defined specifically as embedding conflict capability within social systems or society (e.g. NRM context) as an established norm. It thus consists of conscious and deliberate processes to conceptualize conflict and its escalation distinctively in order to be able to mobilize appropriate capacities for addressing the conflict constructively. In summary, institutionalization of conflict capability means the process intended to internalize this ability.

1.2 General of objective and research questions

It is the promise of delivering constructive outcomes for conflicts that makes the exploration of conflict capability highly relevant in a NRM context. The general scientific objective of this study is therefore to investigate whether the concept of conflict capability is applicable in a NRM context. Based on this scientific objective and taking into account the two basic requirements for institutionalizing conflict capability, the followings research questions are proposed:

1. What distinguishes conflict from non-conflict in the context of NRM and what are the sources of NRM conflict?
2. According to what patterns do conflicts escalate in NRM and to what extent do these patterns allow the delineation of different capacities required to address NRM conflict constructively as well the delineation of "point of no return"?
3. To what extent can conflict capability be institutionalized in NRM practices?

1.3 Study approach

Given the limited attention paid to conflict capability in NRM research, it is very clear that there is little contextual basis of conflict capability that can be used as a starting point for this study. The concept itself has only been applied in the filed of inter-individual and organizational conflicts as described earlier (Glasl, 1999; Jordan, 2000; Zapf and Gross, 2001; Mason and Rychard, 2005). Therefore, for this particular study, it is almost inevitable that the exploration of the concept will require a combination of several approaches in trying to systematically elaborate on the potential of conflict capability in a NRM context. The first approach taken by this study is to explore the concept of conflict capability by putting it on a sound theoretical footing to fit NRM characteristics. While this is explorative in nature (Bernard, 2002; Neuman, 2003), it also critically reflects how conflict capability can be adapted to a NRM context. Therefore, it requires an extensive review and meta-synthesis of concepts, current thinking and theories. On this basis a contextual conceptualization of conflict capability in NRM is critically developed and reflected (Patton, 2001; Creswell, 2002; Johnson and Reynolds, 2005). The theoretical analysis is mainly intended to create a rigorous and distinctive conceptualization of two main elements of conflict capability: conflict and its escalation in NRM (see e.g. Smith and Glass, 1977; Marrison and Marrison, 1995). As shown later in this book, through a critical reflective analysis of current theories, this study illustrates how we framed our ideas about conflict and conflict escalation, and also how we derive the general conceptualization of these ideas for a NRM context. It must be stressed that this particular approach seeks general understanding of concepts with the main focus on providing enlightenment and contributing to theories (Druckman, 2005). The value of this kind of analysis is that it has the potential to generate a high level abstraction of concepts, which is an essential foundation for exploring their applicability empirically.

The second approach involved in this study is an empirical investigation of the proposed concepts developed during the first stage as described above (Downward et al., 2002; Marshall and Rossman, 2006). In other words, the second stage seeks to understand how the concept of conflict capability can be investigated and applied based on actual NRM conflict cases. Thus, the empirical cases are mainly intended to see the applicability of the distinctive conceptualization of conflict and conflict escalation. For this purpose, three empirical cases were carried out in three different locations in Indonesia, i.e. Sumatra, East Kalimantan and West Kalimantan. Empirical investigations were mainly focused on forest-related conflicts under the so-called "transition period" of the Indonesian political system (McCarthy, 2004; Resosudarmo, 2004; Ngakan et al. 2005). This transition took place following the collapse of the Soeharto regime in 1998 after being in power for more than three

decades. Since that time, Indonesia has been trying to become a democratic country and develop decentralization policies as a replacement of the centralistic approach under Soeharto. The incremental movement towards decentralization affects all sectors including NRM. It is within this political context that the empirical part of this study is carried out.

Using both a systematic theoretical analysis and empirical cases – a mix of two approaches (Brewer and Hunter, 1989; Howe, 1992; Creswell, 1994) – it is anticipated that the contextualization of conflict capability in NRM and challenges associated with it will become clear. Despite the high ambition of this study to take the concept of conflict capability in NRM a step forward, it does not attempt to provide a comprehensive solution to NRM conflict in Indonesia or elsewhere, nor does it offer any particular panacea. Addressing a particular conflict situation will require creativity and is context-sensitive in nature. What this study provides, though, is a more robust approach - different from the conventional ones - on how we can address NRM conflict through systematic conflict analysis. Put differently, it shows how to better frame and investigate NRM conflict and its escalation and how this knowledge can be used as a basis for the development and institutionalization of conflict capability in NRM.

1.4 Organization of this book

This book consists of nine chapters (Figure 1). The first chapter outlines the motivation and reasons for choosing conflict capability as the central theme of this study. It also outlines the main objective, research questions and the study approach. Chapter 2 illustrates the context in which the empirical parts of this study are being carried out. It demonstrates a typical case of forestry conflict in Indonesia during the "transition period" from centralistic government to decentralization. As all empirical cases used in this book are from Indonesia, the chapter is intended to give a general picture of the political environment in which NRM conflicts are taking place there.

Chapter 3 to 5 reflect the systematic analysis of current theories in order to develop a robust conceptualization of NRM conflict and its escalation. Chapter 3 highlights the importance and advantages of focusing on conflict capability compared to conventional approaches. Chapter 4 emphasizes the distinctive conceptualization of NRM conflict and how it is differentiated from non-conflict situation. The chapter also uncovers the underlying sources of conflict, that is, those conditions that induce conflict. An alternative approach to conceptualizing NRM conflict is offered in this chapter. Chapter 5 underscores the conceptualization of conflict escalation theoretically. The distinctive stages of NRM conflict escalation are described along with patterns and sequences of escalation.

Chapter 6 to 8 are the empirical cases where the conceptualization of conflict and conflict escalation are applied. Chapter 6 is a case study in the Bulungan Research Forest (now called Malinau Research Forest), East Kalimantan that mainly illustrates the underlying sources of conflict between local communities and a logging company and also between a local community and a mining company. Chapter 7 takes the application of conflict conceptualization further to analyze conflict among various community groups in a wetland area in West Kalimantan. Chapter 8 applies the escalation framework to an empirical study of escalating conflict in Sumatra. Finally, Chapter 9 provides a general discussion and lessons learned highlighting what has been achieved in this study, how far we are from conflict capability in NRM and what needs to be done (e.g. practical implications and future research agenda) in order to get closer to the institutionalization of conflict capability in NRM.
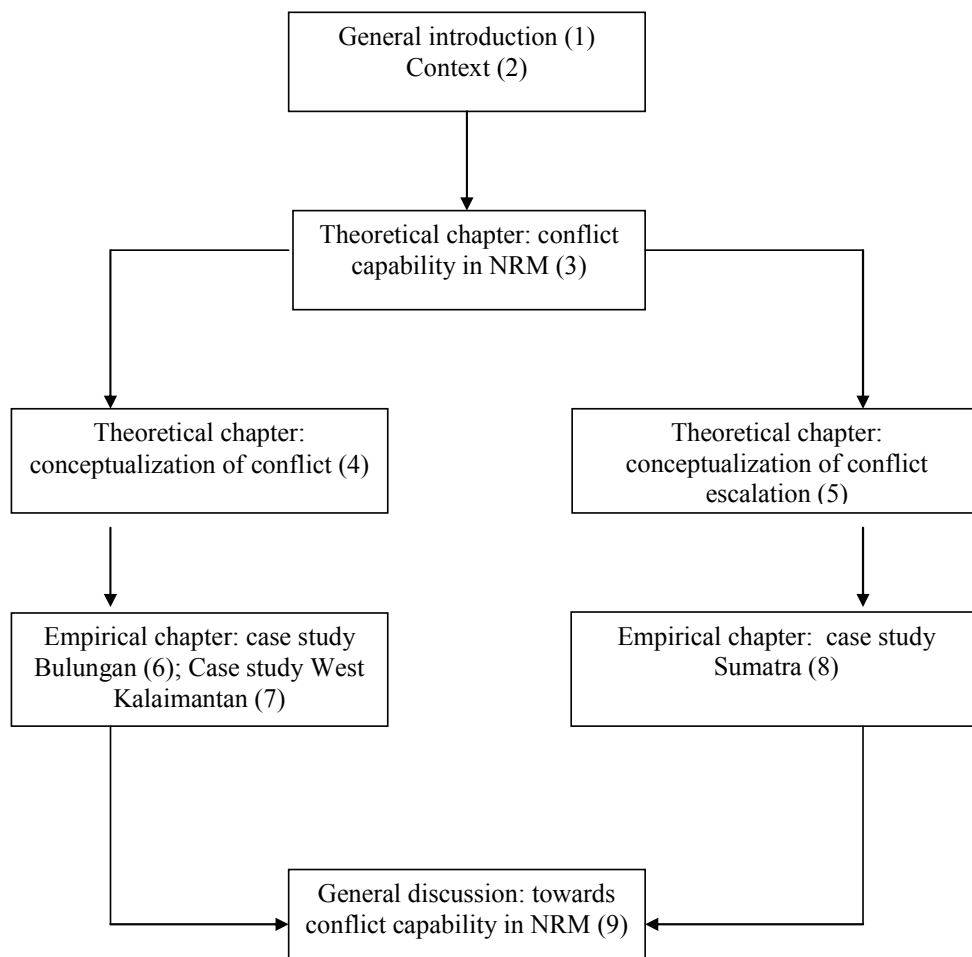
Figure 1.1 Structure of the book

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2

Stakeholder conflicts and forest decentralization policies in West Kalimantan: their dynamics and implications for future forest management

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Abstract

Stakeholder conflicts in relation to forest decentralization policies were studied in West Kalimantan, Indonesia to determine:

- how these policies were understood by local stakeholders,
- how they were implemented, and
- their impacts in terms of forest management and conflicts.

A case study using qualitative methodologies i.e. semi-structured interviews, field observations and workshops, was made. The results show that the implementation of decentralization policies gave rise to conflicts between local and central government as well as among local stakeholders. Despite the goal of benefiting local stakeholders by decentralizing forest management, the central government's subsequent withdrawal of much of the local governments' authority to manage forestry raises new questions on whether the central government is indeed willing to share power. We concluded that central and local governments and relevant stakeholders need to develop better communication and negotiation procedures to address current conflicts appropriately.

Keywords: conflict management, negotiations

2.1 Introduction

Natural resource management (NRM) is almost always characterized by conflict. Many authors have argued that conflict is unavoidable particularly because stakeholders have differing and competing interests, perceptions and ideas about how NRM should be carried out (e.g., Buckles 1999, Castro and Nielson 2003). There is a large body of literature that deals with NRM conflicts and covers areas such as forestry (e.g., Matose 1997, FAO 2000, Hellstrom 2001, Schroeder-Wildberg and Carius 2003, Yasmi 2003, Wulan *et al.* 2004), fishery (e.g., Bavinck 1998, Jentoft 2000), and land use (e.g., Mardiros 1997, Valladares-Padua *et al.* 2002). Because NRM conflicts are so ubiquitous and regular, conflict and conflict management has become a key and inseparable aspect of NRM. A variety of consequences of NRM conflicts have been noted including distrust among stakeholders, resource degradation, hostility, etc. However, to a limited extent, conflicts have also had positive outcomes: for instance, new agreements over resource management, policy changes and co-management agreements among stakeholders (Castro and Nielson 2001).

There has been a long debate about whether conflict is a positive or negative social phenomenon. One school puts forward a "functionalist" or "harmonic" idea and perceives conflict as a mess or hindrance, something dysfunctional and entirely bad (Bailey 1997). In other words, this school of thought often associates conflict with threat to the status quo. Proponents of this school of thought argue, in particular, that conflict connotes a disruption of reliable and stable conditions (Kriesberg 1998). As a consequence, the negative perception of conflict gives rise to conflict avoidance, repression or elimination approaches. Others argue that though conflicts may result in dysfunctional situations, they may also offer constructive outcomes (Castro and Nielson 2001). This school of thought interprets social conflicts as valuable ties that hold modern democratic societies together and provide them with the cohesion they need (Hirschman 1994); accordingly, conflict contributes to desirable positive changes if it is managed and addressed appropriately.

Many authors now contend that conflict has both positive and negative potential (Bailey 1997, Walker and Daniels 1997, Kriesberg 1998). According to this emerging view, an important factor that influences the positive or negative outcomes of a particular conflict is conflict management. In this regard, the success or failure of conflict management is determined mainly by the development of adequate conflict capabilities, i.e., the ability to anticipate and deal with conflict constructively so that the positive potential is enhanced and the negative potential is eliminated. One of the main prerequisites for the development of such capabilities is a solid understanding of conflict triggers or the fundamental issues that lead to conflict (Glasl 1999).

NRM conflicts do not occur in a vacuum: they are embedded in a specific social setting and policy context. Some NRM conflicts take place at local level over boundary issues or access to a particular area such as farmland or forest. Other NRM conflicts involve wider issues and stakeholders. For instance, conflicts might take place between local and national actors over specific policy issues such as decentralization.

In this paper we discuss forest-related conflicts among various stakeholders involved in forest management in West Kalimantan, Indonesia, within the context of decentralized forest management policies. We describe the implementation of 'small logging permits' (known locally as '100-ha concessions'); this type of concession was very popular because under decentralization policies district governments had the authority to issue permits for them. Before discussing various conflicts that have arisen in the implementation of these 'small logging permits', we describe how forest management changed under decentralization policies and the impact that these changes had on local economies and, subsequently, stakeholder conflicts. The results described in this study cover the early stages of decentralization in Indonesia (i.e., from 1999 to 2003).

2.2 Forestry in Indonesia: from 'centralistic' to decentralized management

Forests are one of the most important natural resources in Indonesia. This is not only because forestry makes a major contribution to the national economy but also because it has great socio-cultural and ecological importance. The exploitation of Indonesia's forests did not begin until the late 1960s when it became the means of boosting economic development. In 1967, the Government of Indonesia enacted the Basic Forestry Law to regulate forest exploitation. Moreover, in the same year, to attract investment in forestry and other productive sectors such as mining and oil exploitation, the government ratified a regulation on Foreign Investment. The Government of Indonesia granted 35-year concession rights to private and state-owned companies to extract timber from Indonesia's rich natural forests. Concession holders are permitted to harvest trees in designated areas as guided by the *Indonesian Selective Cutting System* (Armitage and Kuswanda 1989).

Since then, the forestry sector has expanded rapidly, and by 1993 the total number of concession holders in the country had risen to 580, with concessions covering an area of 61 million ha (MoF 2004); the timber-related industries saw similar growth. By 1993/1994 Indonesia had the largest market share of tropical plywood exports with an annual revenue estimated at US$ 3.5 billion (Barr 2001). Other earnings from exports of logs, sawn-wood, wood working and furniture also generated billions of dollars in revenue.

During the second half of the 1990s, environmentalists and the international community increased their pressure on the Government of Indonesia because the natural forests were being exploited so rapidly. Moreover, by this time the remaining forests had become much harder to access because of the difficult topography. As a result, the forestry sector steadily declined. The number of concession holders decreased to 387 in 1999 and to 267 in 2003, with area of 28 million ha under concession (MoF 2004). Furthermore, the end of the 1990s was also marked by a political transformation following the demise of President Soeharto's authoritarian regime, which had been in power for 32 years. With the fall of Soeharto in 1998, major shifts in political structure took place that affected all sectors, including forestry.

The first shift was marked by the enactment of Law 22 on Regional Autonomy and Law 25 on Fiscal Balancing in 1999. These two laws formed the foundations of Indonesian decentralization policies. Moreover, in 1999 the Basic Forestry Law was also replaced by a new forestry law known as Law 41. Most stakeholders in the country, particularly those who had long awaited change, applauded the enactment of these three new laws. Nevertheless, many questions remained as to how to implement this legislation on the ground, particularly in view of the fact that lower-level rulings for the technical implementation of these laws did not exist at that time. As a result, disagreement and confusion occurred among stakeholders at lower levels of government as to who had authority for determining forest areas, utilizing forest products, issuing permits for forest-product extraction, and collecting taxes or fees on forest products (McCarthy 2004).

Amidst this confusion, later in the same year the government published a regulation[1] and two decrees[2] that gave authority to district governments to issue 'small logging permits'. In response to this, local governments throughout Indonesia started to grant two types of small logging permit, namely the Timber Product Utilization Permit (known as IUPHHK) and the Forest Product Harvesting Permit (known as HPHH). The first type of permit could be granted to cooperatives, small to medium-scale businesses and state-owned or privately owned enterprises, with a maximum size of 50,000 ha per permit. In Sintang District, where this study took place, eight IUPHHK permits covering a total area of more than 200,000 ha were issued to private logging companies between 2001 and 2003 (Table 2.1).

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[1] Regulation No. 6/1999 on Forest Utilization and Forest Product Harvesting in Production Forests.
[2] Decree of Minister of Forestry No. 310/Kpts-II/1999 on Guidelines for Granting Forest Product Harvesting. Rights and No.05.1/Kpts-II/2000 on the Criteria and Standards for Forest Product Utilization and Harvesting Business Licences.

Table 2.1 IUPHHK permits issued by Sintang District Government

No	Name of Company	Area (ha)	Validity
1	PT. Borneo Karunia Mandiri	12,000	2003-2028
2	PT. Sinergi Bumi Lestari	16,900	2001-2026
3	PT. Safir Kencana Raharja	36,400	2001-2026
4	PT. Lintas Ketungau Jaya	50,000	2003-2028
5	Koperasi Apang Semangai	16,500	2002-2027
6	PT. Rimba Kapuas Lestari	41,090	2002-2027
7	PT. Insan Kapuas	34,000	2002-2027
8	PT. Hutan Persada Lestari	13,500	2002-2027
	Total	220,390	

The second type of permit (HPHH), on the other hand, could be issued to individuals, farmer groups and cooperatives, with a maximum area of 100 ha per permit. These permits were popular, and were often called '100-ha concessions': district governments in West Kalimantan issued more than 900 HPHH permits between 2000 and 2002 (Dinas Kehutanan Kalimantan Barat 2004). In Sintang District 464 permits were awarded to various farmer groups and local cooperatives – more than in any other district in West Kalimantan (Table 2.2).

Table 2.2 HPHH 100-ha permits issued by district governments in West Kalimantan

District Government	Year			Total permits
	2000	2001	2002	
Kapuas Hulu	11	165	159	335
Sintang	102	176	186	464
Sanggau	1	7	12	20
Sambas	4	13	7	24
Bengkayang	0	4	9	13
Landak	0	1	1	2
Pontianak	12	32	31	75
Ketapang	1	1	9	11
Total	131	399	414	944

2.3 Research location and stakeholders

This study forms part of research on decentralization and its impacts on forestry and livelihoods in Indonesia carried out by the Center for International Forestry Research (CIFOR) since 2002[3]. The study site is located in Sintang District[4], West Kalimantan, which is bordered by Sarawak, Malaysia, to the north (Figure 2.1). West Kalimantan is about 14.7 million ha in area; some 3.8 million ha are classified as protection forest, while 5 million ha are designated for timber production (Pemerintah Propinsi Kalimantan Barat 1995, Dinas Kehutanan Kalimantan Barat 2004). The southern part of Sintang District is said to be the last frontier of conservation forest in the province because three national parks are situated there, namely Betung Karihun, Danau Sentarum and Bukit Baka Bukit Raya National Parks.
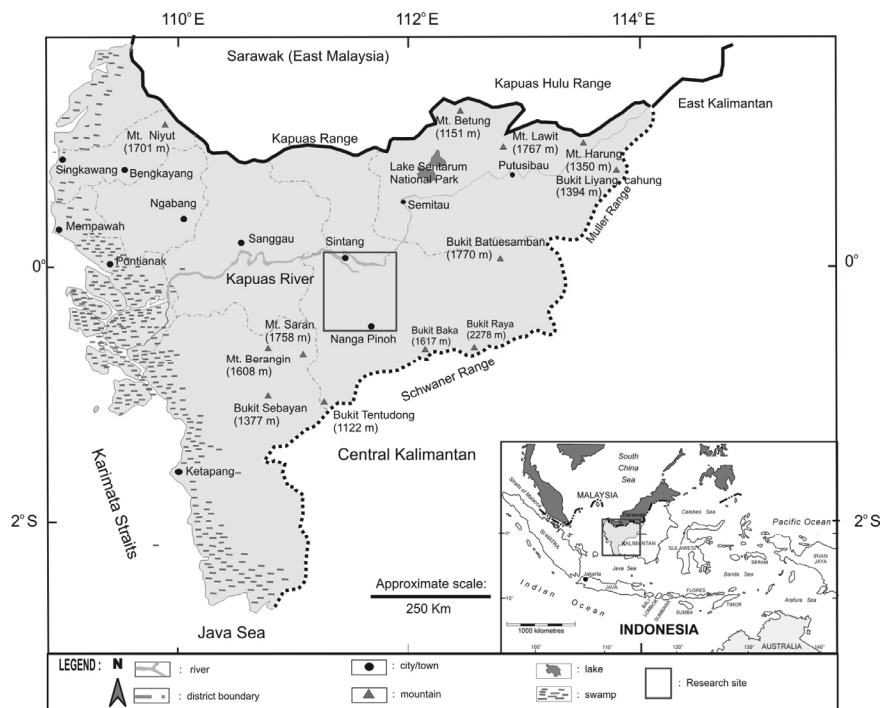
Figure 2.1 Research area

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[3] In 1999, CIFOR began the first round of research on the decentralization of forest administration and policies in four provinces: Riau, East Kalimantan, Central Kalimantan and West Kalimantan. In conjunction with this study, CIFOR also conducted case studies in four other provinces, Jambi, East Kalimantan, South Sulawesi and West Papua, as part of the second round of research.
[4] On 20 November 2003, as part of the decentralization process, Sintang District was split into two: one district called Sintang and other Melawi. However, the new Melawi District will not be fully operational until 2005 and in the meantime administrative responsibilities are carried out by the Sintang District Office.

Forests in this district have been subject to exploitation since the late 1960s, primarily by concession holders. Of the 2.1 million ha of forested area in Sintang District, 1.4 million ha (65%) of production forest are allocated to 17 concession holders (Dinas Kehutanan Kalimantan Barat 2004). Large-scale forest concession allocation continues to be decided by central government in Jakarta.

2.4 Methodology

This was a qualitative study carried out from July 2002 to August 2003[5], to describe how forest management has changed under decentralization policies, using semi-structured interviews at the village, district, provincial and national levels. One of our research team observed 'small logging permits' in operation over an 8-month period and interacted intensively with local communities.

We collected and analyzed secondary data regarding new policies and regulations by interviewing government officials at district, provincial and national levels - in the Ministry of Forestry (MoF) in Jakarta, and in local land-use planning bureaux and district and provincial forestry and tax offices. Furthermore, we convened a multi-stakeholder district workshop in April 2004 to present and discuss our findings. Above all, we shared our findings in a national policy seminar, held in Bogor, West Java, in September 2004, which allowed us to obtain feedback and at the same time learn about decentralization work in other provinces.

2.5 The implementation of HPHH concessions and their impacts on local economies

Because central government did not provide clear guidelines for the implementation of IUPHHK and HPHH permits, district governments used their own initiative to regulate the operation of these new types of logging concessions. Consequently, district governments issued district regulations in the form of Head of District Decrees. For example, the Sintang District Government issued a new forest management regulation through Decree No. 19/1999.

The decree stipulated that concession areas should be located in conversion forests (i.e., forests that are to be converted to other uses such as agriculture, plantation etc.) or production forests as described in the Provincial Spatial Plan (PSP) and Consensus for Forest Land Use (CFLU). There was also a provision for the

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[5] This study was conducted by CIFOR in collaboration with the University of Tanjung Pura and Yayasan Konservasi Borneo, West Kalimantan, and Wageningen University, the Netherlands.

extraction of non-timber forest products in conversion forests, production forests, conservation forests and privately-owned forests. Furthermore, the decree set conditions for fulfilling administrative requirements, evaluation methods etc. A further condition was that logging should not be carried out using heavy equipment; instead, the use of semi-mechanical equipment was strongly encouraged to ensure that the impacts of logging on forest and soil were minimized. Above all, to ensure regeneration, permit holders had to replant using local species once a site was logged over.

The process for obtaining a HPHH permit normally comprised several major steps. First, the applicant submitted a proposal for a permit to the District Head. Second, the proposal was reviewed by the District Head. If the applicant met all the requirements as indicated in the decree, the District Head issued a 'forest product harvesting rights permit' that was valid for three months and only extendable subject to performance. During the 3-month period, the applicant – normally a cooperative or farmer group represented by its 'coordinator' – was obliged to map the forest area, carry out a survey of tree stands, determine the existence of third-party rights over the area, identify 'partners' for carrying out logging activities[6], pay a pre-felling tax to government and submit a work plan. If the district government approved the work plan, a 1-year logging permit was issued. However, the District Head could revoke the permit unilaterally if the work plan was not submitted within the 3-month period or if it was considered inadequate.

The implementation of the permit on the ground was another story. Most of the workforces were not aware of the guidelines for carrying out logging as laid down in Decree No. 19/1999, and the district governments exercised little if any control. As a consequence, our team observed many practices that deviated from the provisions laid down in the decree, including:

1. Boundary and forest surveys were not carried out properly, and area identification was simply done on paper. As a result there was a great deal of overlap among HPHH areas and between HPHH areas and forest company concession areas.
2. Felling was almost always carried out using heavy equipment such as chainsaws, tractors and logging trucks. This happened because most cooperatives and farmer groups partnered and sub-contracted their permits to large companies that were already in the area (e.g., existing concession holders). In return, the cooperatives or farmer groups received fees from the companies based on the number of trees logged in their respective HPHH location.

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[6] Commonly, cooperative and farmer groups linked up with a party that had capital, equipment and technical knowledge to carry out logging. Partners were often local entrepreneurs, existing logging companies or timber 'brokers' from Malaysia.

3. None of the permit holders in the district replanted their areas, although they were obliged to do so.

According to our respondents, the irregularities in the implementation of HPHH permits were mainly due to the inability of district governments to control the activities on ground. When consulted on this issue, district government officials claimed that they did not have sufficient personnel to carry out monitoring and evaluation nor did they have enough funding for such activities. As a consequence, most of the monitoring and evaluation was based on paperwork and reports provided by permit holders.

Despite the many irregularities in the implementation of HPHH permits, the advantages to the district governments were clear: they could collect taxes from permit holders. At least three types of tax were derived from HPHH, namely application fees, pre-felling taxes and forest rehabilitation taxes. By mid-2003, 602 HPHH permits had been issued by Sintang District Government. We estimated that Sintang District's total revenue from HPHH permits amounted to at least US$ 11 million (see Table 2.3).

Table 2.3   Estimated revenue of Sintang District from HPHH permits (from 2000 – mid 2003)[7]

Source of revenue	Number of HPHH permits	Cost per unit (US$)	Total (US$)
Permit applications	602	16.7	10,053
Pre-felling taxes	602	106.7	64,233
Forest rehabilitation taxes (based on timber volume harvested)			11,110,000
Total			11,184,286

At the community level, the HPHH policy provided economic benefits, particularly to the cooperative and farmer groups that held permits. We calculated the economic return to a cooperative permit holder in Nanga Sayan village to be Rp. 136 million, or about US$ 15,000. This was the net sum received after the deduction of all costs such as administration charges, taxes, coordinator's fee, surveys etc. Each cooperative member received around US$ 500 from this sum.

Cooperative members used the funds for new economic activities such as keeping small shops, operating sawmills and running nightclubs and hotels. Clearly, at the community level the economic benefit of HPHH was relatively low compared to the local government's tax gain. Nevertheless, the new policy was a definite improvement for local communities because under the Soeharto regime the local

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[7] Exchange rate: US$ 1 = (Indonesian Rupiah) Rp. 9,000

community had received nothing from forestry as all logging had been carried out by large concession holders and all taxes had been paid to the central government in Jakarta.

On the other hand, our study also uncovered a degree of corruption involving coordinators from the communities who played a major role in fulfilling the administrative requirements for acquiring permits from district governments. In many cases the coordinators could not account for all expenses with proper receipts: for instance, when they had to pay fees at the district office to have their application processed. The interviews with most of the applicants indicated that this lack of control was common. Therefore conflicts between community members and their coordinators were not uncommon.

As can be seen, the issuing of HPHH permits in Sintang increased the number of actors and activities in the forestry sector; the same is also true for other parts of Indonesia (see e.g., Barr *et al*. 2001, McCarthy 2001, Resosudarmo 2004). One of the major problems with the coexistence of the various permit holders and inadequate boundary surveys was overlapping claims to forest areas. For example, we found at least one concession holder reporting that HPHH operators felled trees in an existing concession area. The HPHH operators based their activities on permission from the District Head to log trees in that particular area. As a result, there were many conflicts and disputes on the ground with regard to boundaries and access to trees.

These various conflicts were made known to the central government. In 2002, on the grounds that the implementation of small concessions was considered to escalate conflicts (i.e., among permit holders and between permit holders and existing concession holders) and illegal logging activities (Schroeder-Wildberg and Carius 2003), the MoF revoked the legislation that allowed district governments to issue small logging permits[8], a decision that became effective on 1 March 2003. To strengthen its argument, central government further claimed that district governments lacked the capacity to implement and supervise permit holders adequately so that most of the permit holders failed to achieve sustainable forest management (SFM) criteria and standards.

Nonetheless, district governments in West Kalimantan continued to issue permits well beyond the cut-off date. According to the Sintang District Head, the revocation did not comply with the higher legislation on decentralization and failed to support the interests of local forest stakeholders. After several warnings from the central government at the end of 2003, most district governments in West Kalimantan stopped issuing permits.

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[8] Decree of Ministry of Forestry No. 541/2002, Government Regulation No. 34/2002 and Ministerial Decree No. 6886/2002.

2.6 Multi-level stakeholder conflicts in decentralized forest management

Before the authority to issue logging permits was taken away from District Heads, interaction between local and central government appeared to function with minimal conflict. The District Government in Sintang stated that it was happy to be able to participate in forest management in its district because, during the Soeharto era, it had not been able to do so as everything had been controlled by central government in Jakarta. Moreover, through the issuing of logging permits at district level, district governments generated significant local revenues. However, after the revocation of the district governments' authority to issue logging permits, Sintang District Government began to accuse the central government of being unwilling to decentralize authority over forest management: Sintang claimed that central government in Jakarta wanted to re-centralize forest management. At this point, the District Government argued that re-centralization of forest management was not in line with decentralization policies as laid down in Laws 22 and 25.

However, a high ranking official of the MoF stated in an interview that the MoF had never intended to fully decentralize authority over forest management. The official said "[…] we are not re-centralizing forest management because from the beginning the central government has never given full authority to local governments to issue logging permits. The government regulation and ministry decrees stated that the central government might give part of its authority to local governments gradually as long as local governments are considered institutionally ready". According to the official, many local governments had misinterpreted the regulations and acted on their own initiative. Clearly, central and local governments differed in their interpretation of government regulations.

A second type of conflict was conflict among stakeholders who participated in the small logging activities. Implementation of the HPHH '100-ha concession' resulted in at least four forms of commonly observed horizontal conflict, namely:

♦ Conflicts between cooperatives or farmer group members and their coordinators about the use of funds and the distribution of money. Coordinators, with their larger roles, would automatically receive the greater share. In many cases irregularities occurred when coordinators used the group's money for their own purposes or did not report money that they had received from private partners.

♦ Conflict over customary forests. This type of conflict arose when HPHH '100-ha' concessions were issued for forest over which two neighboring villages held customary claims. This occurred when the village borders were unclear and forest survey teams had not made proper surveys in the field (conflict between Bora and Mekar Pelita villages, for example)

♦ <u>Conflict between cooperatives or farmer groups and their partners such as logging investors or large-concession holders</u> (e.g., conflict between a cooperative in Nanga Sayan village with its partner, an existing concession holder). These conflicts revolved around farmer groups protesting when the partner did not adhere to agreed schedules or changed block-felling timetables. In some cases partners failed to keep promises to pay previously agreed amounts of fees to the cooperative.

♦ <u>Conflict among members of a particular farmer group/cooperative</u> occurred when those having proof of customary rights over forest, making use of tax receipts from the Dutch colonial era, claimed higher benefits/fees from HPHH, while others, who did not have such proof, received only smaller benefits (a farmer group/cooperative in Nanga Sayan, for example).

2.7 Discussion and lessons learnt

This case study has shown that the shift of forest management from centralized towards decentralized management brought with it some economic benefits to local stakeholders such as district governments, local communities and timber-industry entrepreneurs. For the first time local governments gained the local taxes from timber activities; similarly, local communities appreciated that they could receive direct benefits from the implementation of decentralized forest management. At the local level, some new economic activities also grew as a consequence of new forestry-related activities in their area.

Although the indication of positive economic benefits at local level was applauded by many local stakeholders, decentralized forest management also introduced several major problems. The problems included conflicts between local and central government due to differences in their interpretation of decentralization regulations and the revocation by central government of the local governments' authority to issue logging permits; horizontal conflicts among stakeholders involved in forestry activities (e.g., among permit holders, between permit holders and existing concessionaires); and internal conflict among the members of a particular farmer group or cooperative over the distribution of fees from logging activities.

As in many other NRM conflicts (see e.g., Matose 1997, FAO 2000, Hellstrom 2001, Wulan *et al.* 2004), the conflicts in West Kalimantan had a variety of consequences. Conflict between local and central government often resulted in lack of trust between them. This lack of trust was reflected in the accusation by local governments that central government wanted to re-centralize forest management. Moreover, central government was often 'attacked' for its unwillingness to share power. Despite these accusations, the powerful central government upheld its

decision to revoke the authority of local governments to issue logging permits. As a result, the local government in Sintang delayed complying with the central government's decision, in protest. This situation clearly indicates a continuing power struggle between central and local government regarding forest decentralization. On the other hand, under the decentralized system horizontal conflicts among stakeholders who participated in forest management under the new policies also appeared to be common. Disagreements over boundaries, disputes over work plans and benefit sharing, accusation of corruption and illegal logging activities were often reported.

From our observation, the outcomes of the various conflicts have been rather negative. Furthermore, the inability of government to control forest activities has resulted in widespread illegal logging (Schroeder-Wildberg and Carius 2003). Although there was no report of hostility, all the conflicts were indications of a dysfunctional system. For this reason, we agree with the argument put forward earlier by many 'functionalists' who described conflict as a mess, bad and a hindrance (Bailey 1997). In the West Kalimantan case, these negative consequences of conflict had considerable impact. Nevertheless, the negative consequences indicated above could be explained by the inability of the stakeholders involved to cope with and address the conflicts appropriately. The need for conflict management in the implementation of decentralized forest management had not been taken into account in any of the legislation. We failed to find any clause in the government or district legislation that explicitly regulates how stakeholder conflicts should be addressed. Consequently, it is not surprising that these conflicts had negative impacts.

The most important next step for addressing conflicts in decentralized forest management in West Kalimantan is to develop mechanisms and capabilities to address conflict at different levels (village, district and national) in order to implement desirable changes (Walker and Daniels 1997, Kriesberg 1998, Castro and Nielson 2001). An initiative to establish good two-way communication between local and central government over the implementation of decentralized forest management is needed. This communication should form the foundation for a shared understanding of the different regulations and how those regulations should be implemented. Most importantly, this communication should find options for local and central governments to carry out forest management jointly and describe their respective roles and responsibilities in such a joint forest management arrangement. In decentralized forest management clear understanding of the roles and responsibilities of the different government levels is essential. Castro and Neilson (2001) have indicated that collaborative forest management initiatives between different levels of government organizations and among various stakeholders often result from bitter conflicts.

Glasl (1999) argued that the success of conflict management relies heavily on the ability to address its triggers. We suggest that there is a need to develop negotiation skills. Negotiation, which has not been used in any of these conflicts, seems to be lacking at the moment. Power intervention was clearly dominant, as indicated by the revocation by central government of the district governments' authority. Ideally, there should have been negotiation between the parties to find a 'win-win solution' rather than a quick and seemingly unacceptable use of power. Furthermore, at the local level negotiation might be beneficial. Local communities need to improve their skills in negotiation in order to deal successfully with outsiders such as timber companies. Local non-government and research organizations should have a crucial role by providing such training. Finally, conflicts must be anticipated (Castro and Nielson 2003). Policies must include carefully devised conflict management schemes as an integral part of resource management. Furthermore, there is a need to develop awareness amongst all stakeholders that conflict is almost unavoidable. Once they are aware of this, stakeholders should be able to anticipate conflict and therefore strive to develop their own ability to address it accordingly. The stakeholders themselves must learn how they can best handle their conflicts (Glasl 1999), and how to obtain outside help (e.g., mediators, facilitators etc.) if they are no longer able to cope with conflicts by themselves.

2.8 Conclusions

The implementation of forest decentralization policies in West Kalimantan resulted in conflicts between local and central government about the authority to issue logging permits. Furthermore, forest decentralization policies also created local conflicts among stakeholders over boundaries, benefit sharing etc. No systematic conflict management mechanisms have been used to address these conflicts. As a consequence, many of the conflicts resulted in negative impacts such as lack of trust, illegal logging, accusations etc. Nevertheless, it has been argued that there is the potential to manage conflicts through the development of communication and negotiation skills. Conflict in resource management must be anticipated from the outset so that when it arises it can be addressed adequately.

Acknowledgements

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3

Coping with natural resource conflict and the development of conflict capability

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Abstract

The socio-political and economic costs of NRM conflict can be extremely serious. If not addressed adequately, NRM conflict may cause hostility, distrust and political instability. Therefore, the call to address NRM conflict constructively has continuously increased. It is generally argued that to address NRM conflict adequately so-called conflict competency is required. However, conflict competency in NRM has not yet been investigated systematically. Through an extensive and systematic analysis of NRM conflict cases, this study explores three major areas related to conflict competency: the use of internal and external competencies in relation to applying certain conflict coping strategies and their successfulness; critical factors that determine the success of conflict coping strategies; and the motivations behind the application of conflict coping strategies. The results show that negotiation and mediation are the most frequently used conflict coping strategies in NRM. The main motivations for applying negotiation and mediation are their familiarity and cost-effective nature. Despite their wide application, their ability to bring about success has been relatively low. Effective management of NRM conflicts remains the exception. Given this fact, we argue for the necessity to expand the notion of conflict competency into conflict capability. The latter takes into account the distinctive conceptualization of conflict and its escalation as important elements to be considered to constructively address conflict. More empirical scrutiny is required over these elements in a NRM context.

Keywords: conflict capability, conflict competency, conflict coping strategy, NRM conflict, successful conflict

3.1 Introduction

In natural resource management (NRM) such as forestry, fishery or land allocation conflict is pervasive (Walker and Daniels 1997; Buckles 1999; FAO 2000a; Ho 2006). Under certain circumstances, NRM conflict can result in mistrust and hostility among stakeholders (Alston et al. 2000; Martinez-Alier 2001; Adams et al. 2003). It may also end up in civil war, human rights abuses and political instability (Kaplan 1994; Homer-Dixon 1999; Wenban-Smith 2001). In an extreme situation such as a dysfunctional state, resource conflict can be protracted and enduring (Lewicki et al. 2003). To settle it massive resources -- both monetary and human -- are required. Peluso and Watt (2001), for example, show clearly the magnitude of impacts that NRM conflict can generate. It becomes obvious that if not addressed adequately, the socio-political and economic costs of NRM conflict can be extremely serious.

With so many examples of severe impacts, the call to address NRM conflict constructively has continuously increased (Ayling and Kelly 1997; Daniels and Walker 2001). It has moved from the fringes of the field to become a central objective in NRM. The desire to achieve constructive outcomes and avoid negative socio-political and economic consequences of NRM conflict are shared by many stakeholders including local people, governments, donor agencies and non governmental organizations (NGOs). Consequently, there has been a lot of attention paid to developing adequate mechanisms and strategies for addressing NRM conflict (FAO 2000b; Castro and Nielson 2003). According to Lynch, Q.C (2001) and recently Runde and Flanagan (2007) to address conflict constructively, the so-called "conflict competency" is required. The adequate competency of disputants and conflict interveners (e.g. mediator, arbitrator) highly influences the successful outcome of a conflict (Wall and Callister 1995). From now on, the competency of disputants and conflict interveners is referred to as "internal competency" and "external competency" respectively.

In the context of NRM, there is little study that looks systematically into conflict competency though a large body of literature on conflict management, conflict resolution and alternative dispute resolution (ADR) exists. Therefore, this paper attempts to explore conflict competency in NRM in order to get a deeper insight on how such competency can be developed and strengthened so that NRM conflict can be addressed adequately. To achieve this objective, we carry out an extensive and systematic analysis of existing NRM conflict cases from which we explore three major areas: the use of internal and external competencies in relation to applying certain conflict coping strategies (e.g. negotiation, mediation) and how successful they are; critical factors that determine the success of conflict coping strategies; and the motivations behind the application of conflict coping strategies. The rest of this paper is organized as follows. First, we provide a brief review of how to cope with

conflicts in general (i.e. approaches to addressing conflict, coping strategies and required competencies associated with each coping strategy) and characteristics of a constructive conflict. This is followed by a methodology section where we elaborate methods and approaches that we use to systematically analyze conflict competency in NRM. The result is divided into three parts following the main focus areas mentioned above. At the end, we re-visit the notion of conflict competency and discuss the way forward in terms of addressing NRM conflict more strategically.

3.2 Coping with conflicts

3.2.1 Approaches to addressing conflict

In general, three ideal-type approaches in dealing with conflict can be distinguished: conflict resolution, conflict management and alternative dispute resolution (ADR) (Galtung 1965; Wall and Callister 1995; Bartos and Wehr 2002). These classical approaches originate from the social science discipline and have been widely applied in different contexts, including in NRM. Table 3.1 summarizes the main assumption and objective for each of these approaches.

Table 3.1 Three common approaches for addressing conflict

Approach	Main assumption	Main objective
Conflict resolution	Every conflict has to be resolved	Terminating the conflict
Conflict management	Conflict is complex and can never be entirely resolved	Finding a compromise
ADR		Negotiated agreement

In its original conception, conflict resolution assumes that every conflict has to be resolved because conflict is bad and dysfunctional (Coser 1967; Zartman 1991). The view of conflict as a negative social phenomenon is influenced by the functionalist school of thought that sees conflict as a threat to the "status quo" and the existing stable conditions (Hirschman 1994; Bailey 1997; Kriesberg 1998). Conflict resolution came as a field of study in the 1950s after the Second World War and at the height of the cold war when the super powers raced for nuclear weapons, which threatened human survival (Mayer 2000; Ramsbotham et al. 2005). At that time there was a very high desire to resolve such alarming situation (Welsh and Coleman 2002; Harolds et al. 2006). With this background, it is not surprising that the main objective of conflict resolution is to terminate conflict as quickly as possible.

The most recent concepts, conflict management and ADR embody a different assumption. Both approaches are quite similar though not completely identical. ADR is generally seen as a subset of conflict management that specifically focuses on non-litigation strategies in addressing the conflict. Both assume that conflict is a complex social phenomenon that may never be entirely resolved - providing ultimate resolutions to conflicts is not an easy matter (Wall and Callister 1995; FAO 2000a; Walker and Daniels 2001). In this way, they do not view conflict as entirely negative but more neutral. Conflict is complex but at the same time can be addressed. As a result, they strive towards achieving a compromise or a negotiated agreement. The former is described to be achieved when disputants can reach a consensus that is beneficial to all disputants (see Fisher and Ury 1981; Susskind et al. 2000). The objective is to try to attain a negotiated agreement where disputants can compromise to meet some of their objectives. In other words, disputants strive at least to fulfill the minimum agreeable solution to their conflict. Both conflict management and ADR do not advocate an immediate termination of the conflict but rather the development of a process that can lead to a compromise or a negotiated agreement.

While from a theoretical-analytical perspective the classical approaches have quite different underlying assumptions and objectives, in practice they are more frequent used interchangeably, e.g. with conflict resolution and conflict management as synonyms (e.g. Juergensmeyer 1984; Isenhart and Spangle 2000). An important reason for this gradually disappearing rigid classification in practice can be seen in the overlap between concrete conflict coping strategies implied in the classical approaches.

3.2.2 Conflict coping strategies and the required competencies
Independent from the type of approach, an actual conflict situation requires the adequate use of certain conflict coping strategies. Within the classical approaches explicit coping strategies have been developed: six conflict coping strategies are frequently mentioned in conflict resolution (see Isenhart and Spangle 2000) – i.e. negotiation, mediation, arbitration, adjudication, coercion and avoidance; four common conflict coping strategies dominate discussions about conflict management (Wall and Callister 1995) – i.e. negotiation, mediation, arbitration and adjudication; in ADR two conflict coping strategies are most common: mediation and arbitration (Engel and Korf 2005). Both conflict management and ADR promote a win-win solution and thus do not tolerate the use of coercion or avoidance, which in most of the cases lead to win-lose outcome (Airaksinen 1988). The implementation of the conflict coping strategies themselves requires a number of internal and external competencies as described in Table 3.2.

Table 3.2 Required competencies for conflict coping strategy

No	Coping strategy	Required competency	
		Internal	External
1	Negotiation	Communication, persuasive, collaborative	None
2	Mediation	Communication	Communication, neutrality, persuasive, participatory process
3	Arbitration	Communication	Neutrality, decision making
4	Adjudication	Communication	Neutrality, legal matters, decision making
5	Coercion	Power	None
6	Avoidance	None	None

Negotiation is a voluntary bargaining process whereby disputants take the initiative to meet face to face to find a compromise (Stevens 1958; Scanzoni 1979). Three major internal competencies are required in negotiation: communication skills, persuasive ability and collaborative spirit (Sebenius 1992; Buttoud and Yunusova 2002). As negotiation is purely the initiative of disputants, no external competency is needed. Furthermore, mediation is a form of a third party intervention where a mediator does not have the power or authority to impose a solution (Rehmus 1965; Dryzek and Hunter 1987; Isenhart and Spangle 2000). The most important internal competency for mediation is the communication skill as it allows disputants to clearly articulate their concerns. Moreover, external competencies are particularly related to the competencies of the mediator that include communication skill, neutrality, persuasive aptitude and the ability to establish a participatory process. How well the mediator conducts the process, maintains neutrality and communicates help determine the satisfaction of the disputing parties and whether or not the disputants reach agreement (Yarborough and Wilmot 1995).

Arbitration refers to submitting a conflict to a mutually agreed upon third party, the so-called arbitrator who renders a decision (FAO 2006). It is being used specifically if negotiation and mediation fail, as well as to avoid the high cost of litigation. It is distinguished from mediation by its decisive nature, i.e. the arbitrator makes a decision (Bernheimer 1926). The internal competency required for arbitration is communication skill and the main external competency is neutrality of the arbitrator. Furthermore, adjudication is the process where a binding decision is made by a judge through formal procedures in a court of law (Woll 1960; Sarat and Grossman 1975). It is the most formal and contentious form of conflict strategy and normally is used as a last resort. In adjudication the main internal competency that needs to be present is communication skill of disputants to make their positions clearly understood. Knowledge on legal matters, neutrality and the ability to provide

a sound decision are among the main external competencies associated with adjudication.

Coercion is the use of power to resolve a conflict (Airaksinen 1988). It is often destructive, sometimes violent, and seldom leads directly to an effective solution. The use of coercion may achieve partial success, but usually at a high cost (Jackson et al., 1978). Meanwhile, avoidance is a strategy where conflicting parties avoid overt conflict and prevent conflict from becoming publicly acknowledged (Ulbig and Funk 1999). In avoidance people's efforts are to prevent a conflict from surfacing, deny a conflict's existence, or stay out of an existing conflict. If conflict is acknowledged, it is assumed that there is no need to address it as it will go away by itself (Mayer 2000). Coercion requires power and avoidance does not require any competency.

3.2.3 Constructive or successful conflict?

Whereas conflict approaches do rigidly differ regards their assumptions and objectives, ambiguities exist regarding the evaluation of the outcome of conflict coping strategies. In other words, discussions remain rather vague when conflicts can be said to have been terminated, solved or disappeared. The term constructive conflict is commonly used to describe certain desirable qualities of outcomes generated from an attempt to address a conflict (Kriesberg 1998). As it constitutes a positive connotation, constructive conflict is generally regarded as an "ideal goal" that should be achieved. While this particular term is frequently used in conflict literature (Deutsch 1973; Deutsch 1988; Lederach 2003), there is no single definition as to what it exactly means. It is being interpreted broadly and differently, leaving room for subjectivity and politically-driven motivation in its interpretations. What is constructive in certain circumstances may not necessarily be that way in others. Unless the term is operationalized more specifically, it is very difficult to delineate between constructive and non-constructive conflict.

A number of authors use a rather neutral term, namely successful conflict, which is defined by the ability to reach a negotiated agreement (see Fisher and Ury 1981; Ury 1999; Susskind et al. 2000). The use of negotiated agreement as an indicator of a successful conflict is based on a number of reasons. Negotiated agreement indicates the first concrete step towards promising conflict resolution. It brings disputants to a stage where they can agree on certain solutions to their conflict. In this way, a negotiated agreement is a clear gauge of successful conflict, allowing also for measuring the success from an empirical point of view. To use a negotiated agreement as an indicator also allows the stratification of conflict - for analytical purposes - into two distinct groups: successful and non-successful conflict. Thus, successful conflict seems to have a more rigorous and unambiguous conceptualization compared to constructive conflict. For this reason, the notion of

conflict competency in this paper is described as the competency to realize a negotiated agreement.

3.3 Method

3.3.1 Assumptions and case selection

Our analysis is mainly based on existing NRM conflict cases from a number of sources. In selecting the cases, we employed a broad definition of NRM to include all kinds of resource management, such as forestry, fishery, land use, agriculture, and mining. Often referred to as "common pool resource", they exhibit common characteristics such as multiple stakeholder groups, complex institutional arrangements, the importance of material and cultural values, the presence free-riders, and unavoidable conflict (Ostrom 1990; Clark et al. 2000; Gausset et al. 2005). Adopting these assumptions, we searched for conflict cases, particularly those related to how NRM conflict is addressed in the peer reviewed journals from the following databases: Elsevier/Science Direct, SpringerLink, JSTOR, and Taylor and Francis. Given the wide use of these databases, we anticipated that they would include major studies of conflict management in NRM.

We used keyword searches that ranged from general to specific ones. Combinations of terms were used to ensure that all relevant cases were selected. As expected, the results were enormous with more than 600 returns. We screened and excluded non case-study-type articles, those that did not relate to NRM and those that did not explicitly demonstrate how conflict was dealt with. Finally, we could secure one hundred cases, which we considered sufficient enough for this analysis. Table 3.3 illustrates general characteristics of these cases. They came from fifty different journals but 40% of them came from only six journals. The cases fell within fifty one countries. About a third of the cases was from North America (i.e. USA and Canada), another third from Asia and Africa combined, and the rest from Europe, Australia, Latin America, and mixed of several countries. As noted, all of the cases were published in the past three decades. Whilst these cases had different characteristics, it was not our intention to make comparisons among those characteristics. For example, we will not compare conflict coping strategies in Asia with those from the other parts of the world simply because the distribution of cases was unequal.

Table 3.3 Characteristics of cases

Characteristic	Description
Sources	100 cases from 50 different journals
Journals from where the cases being derived	- Environmental Impacts Assessment Reviews = 11 articles - Land Use Policy = 8 articles - Forest Policy and Economics = 6 articles - Environmental Management = 5 articles - International Negotiation = 5 articles - Society and Natural Resources = 5 articles - The other forty four journals = 55 articles
Countries of cases	51 countries
Distribution of cases	North America = 31 cases; Asia = 17; Africa = 17; Europe = 14; Australia = 6 cases; Latin America= 8 cases; Mixed = 7 cases
Publication year	Ranging from 1980 to 2006

3.3.2 Content analysis, coding and data interpretation

To analyze the one hundred cases, we carried out content analysis. For every case we tried to identify the three focuses mentioned earlier. First, we identified conflict coping strategies used to address the conflict based on the previous review (Table 3.2). After conflict strategy was identified we coded it numerically. For example, negotiation was coded "1" and mediation was coded "2". We used numerical codes from 1 to 6 to reflect all the categories of conflict strategies. In cases where there was more than one strategy found to address a conflict we coded that combination accordingly. For example, the use of negotiation and mediation at the same time was coded "12". We then identified the success of the conflict coping strategy in bringing a compromise or a negotiated agreement. We coded successful conflict "1" and non-successful "2". Second, to understand the critical factors that stimulate a successful conflict, we explored in each case conditions that trigger the achievement of a compromise or a negotiated agreement. We coded this numerically through an open coding as literature on this subject is still lacking. Third, we explored the major motivations for applying certain conflict coping strategies (e.g. negotiation, mediation) also through an open coding.

To ensure the consistency of our coding, we double checked all the coded information after 50% of all cases were analyzed – the reliability check according to Mayring (2000). After double checking, we found out that our coding was consistent and comprehensive enough, which was expected as we developed our codes according to the review of scientific literature. All cases being analyzed and coded were stored in SPSS. Our analysis was mainly descriptive through performing queries to the database. For example, we performed queries to see the frequency distribution of conflict coping strategies, the successfulness of these strategies and

critical factors. While frequency distribution gives us a general overview over all cases, we also performed more detailed statistical analyses, for example, to see whether there was any relationship between conflict coping strategies and successful outcomes (Bryman and Cramer 1999).

3.4 Results

3.4.1 Conflict coping strategies and their successfulness

Our analysis reveals five conflict coping strategies are used in addressing NRM conflict (Figure 3.1). The only conflict coping strategy that is not found in our dataset is avoidance, we suggest that this could be related to the characteristics of the cases being included in our analysis. Another possibility is that avoidance cases are seldom reported in scientific journals. In general, negotiation is the most common coping strategy being applied in 43% of the cases. The use of mediation is quite common as well, i.e. in about one third of the entire cases. Moreover, "mediation & negotiation" combined is employed in 14% of the cases. Other coping strategies (i.e. arbitration, adjudication and coercion) seem to be applied only in some limited situations. With this result, it is becoming clear that in our dataset negotiation and mediation are the most frequently used coping strategies.
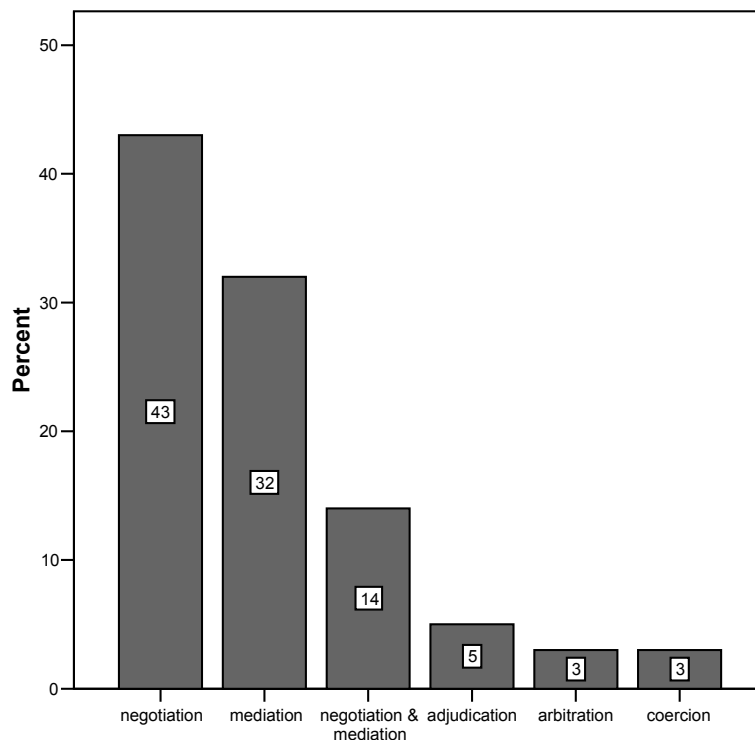

Figure 3.1 Conflict management strategies in NRM (n = 100)

From further analysis, we discover that negotiation consists of various forms and forums such as formal meetings and informal discussions. Formal negotiation is usually conducted with preparation and on a specific schedule. Very often, it is done through the representative of disputing parties who are normally trusted by their constituents to have competency to negotiate as they can communicate their constituents' aspiration. On the other hand, there are also examples of non formal negotiation. For instance, in the case where there is a dispute between two neighboring communities informal and spontaneous dialogue can be used. Community leaders from both sides take initiative and discuss their conflict based on a spirit of collaboration. Beside the competency to develop a collaborative spirit, these leaders are regarded by their constituents to have a persuasive competency.

Mediation can take many forms as well, such as through workshops, mediated bilateral meetings, and mediated-conferences. Mediators may include government officials, non governmental organizations (NGOs), traditional leaders, research organizations, universities or professional mediators. Local level conflict such as a conflict between community groups that is not solved through negotiation is usually mediated by local authorities such as the local government or NGOs as they are usually perceived as neutral parties having the competency to bridge the communication gaps among disputants. Local NGOs, for example, may be able to develop a participatory process of mediation so that disputants recognize the ownership of the mediation. This kind of competency is often decisive in the mediation process. On the other hand, when a conflict involves larger scale such as conflict between a multi-national mining company and the local community or conflict between two nations, a mediator is usually chosen from professionally trained mediators. They usually have credible competencies and experience to mediate such a conflict.

Adjudication is only used in addressing a limited number of NRM conflict cases (i.e. 5%). We only find cases of adjudication such as court or other formal procedures to address NRM conflict mainly in developed countries such as United States and Canada. Most of the adjudication processes in those countries are found to be the last resort after all other attempts fail to bring a solution. On the other hand, none of the NRM conflict in developing countries is addressed through adjudication – at least speaking for the cases in our dataset. This finding can be linked to the absence of an adjudication system for NRM conflict in many developing countries. It is also possible that adjudication is less desirable in developing countries due to its high cost. Finally, the use of arbitration and coercion in NRM conflict is relatively uncommon, i.e. in our dataset they are used in only 3% of the cases each.

Table 3.4 explains to what extent each of the coping strategies mentioned above – and the internal and external competencies associated with them - has been

40

successful in realizing a compromise or a negotiated agreement. As shown in the table, for every coping strategy successful and non-successful outcomes coexist. For example, arbitration seems to be the worst coping strategy as it fails to provide a negotiated agreement in all cases. Negotiation can only bring about a success in eight cases while in thirty five cases it cannot. Moreover, mediation is successful in eleven cases, i.e. in about 50% of all cases addressed through mediation. Combination of negotiation & mediation at the same time seems to result in more than 60% successful outcome, i.e. nine out of fourteen. Meanwhile, adjudication brings about successful outcomes in two out of five cases while coercion mainly results in non-successful outcomes.

To test whether the patterns of relationship between conflict coping strategies and their outcomes as shown in Table 3.4 is acquired by chance, we performed a chi-square test. The value of the chi-square test is 12.06 (provided at the bottom of the table). This value is significant at the 95% confident interval (p < 0.05). Based on this result, we can conclude that theses patterns of relationship are not due to chance. So, if we increase the sample size of our dataset such patterns will most likely persist. Table 3.4 also illustrates that overall success in bringing a compromise or negotiated agreement is only achieved in 31% of the entire cases in contrast to 69% of the non- successful cases. The non parametric chi-square test reveals that the frequency of successful and non-successful cases differs significantly.

Table 3.4 Conflict coping strategies and their successfulness

Conflict coping strategy	Not successful	Successful	Total
Negotiation	35	8	43
Mediation	21	11	32
Negotiation & mediation	5	9	14
Adjudication	3	2	5
Arbitration	3	0	3
Coercion	2	1	3
Total	69	31	100
Statistical test: $\chi^2 = 12.06$ significant p < 0.05			

3.4.2 Critical factors determining the success

It is perhaps logical to assume that when internal and external competencies are adequately possessed by the disputants and conflict interveners, success will follow automatically. For example, if disputants have excellent communication skills, they presumably can achieve successful negotiation. Likewise, when mediators are neutral, persuasive and able to develop a participatory process most likely the mediation process will yield a compromise or a negotiated agreement. Beyond the

internal and external competencies, our analysis suggests that the success in addressing NRM conflict is highly determined by a number of critical factors (Figure 3.2).

The most significant factor is the ability to create legitimacy of the processes involved in addressing the conflict (i.e. observed in one third of the whole constructive cases). A number of important characteristics of a legitimate process exist. For example, the conflict between the United States and Mexico over the Colorado River has resulted in many success stories in the past, which can be attributed to the credible mediators who were able to establish a fair process, develop trust and create clear timeline and procedures. Both the US and Mexico saw high legitimacy of the mediation processes because they were equally consulted and their participation was highly valued and seen critical by the mediators. Both countries shared political commitment to achieve agreements. Apart from this example, we also find in many other cases that legitimacy is a critical factor for achieving successful outcomes. Trustworthy and impartial mediators, credible facilitators, well-train mediators who respect local traditions and systems, credible local leaders, the use of scientific knowledge to help frame and clarify conflicting issues are crucial in establishing a legitimate process – thus triggering the achievement of successful outcomes.
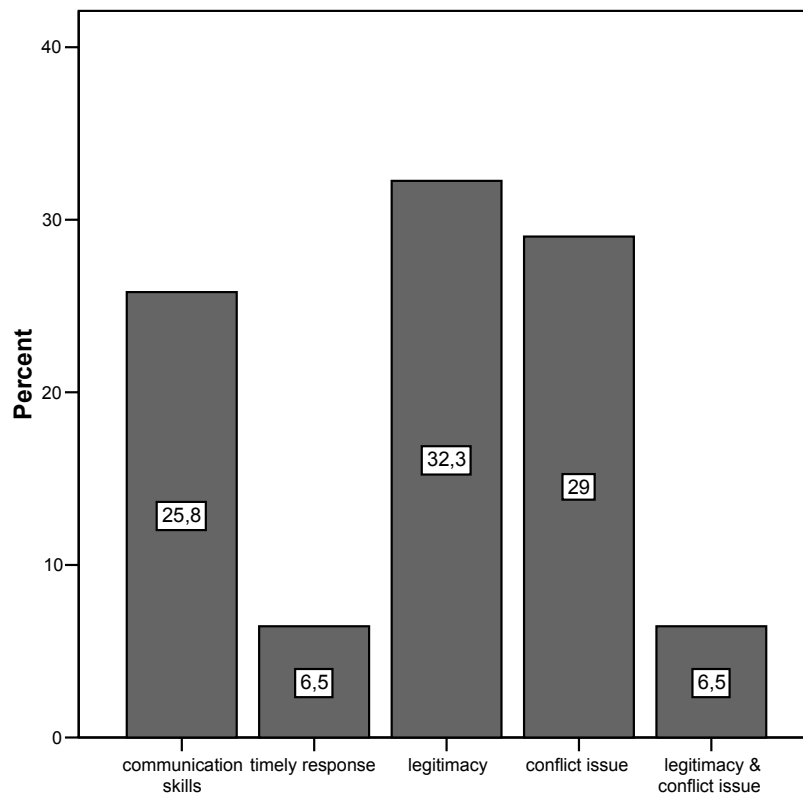

Figure 3.2 Critical factors observed in successful conflict cases (n = 31)

The second most critical factor is the ability to recognize and address conflict issues, i.e. to clearly define the content of the conflict (i.e. observed in 29% of the cases). One of the conflict issues commonly recognized is the cultural importance of forest, landscape and other places or environmental symbols for certain communities. For example, in our dataset there is a conflict case between a mining company and a local community where the local community resists a mining operation as it could destroy the community's sacred sites (e.g. ancestors' burial sites, sacred forests). This conflict escalates to a wild protest. A number of compensation schemes are proposed by the company but the community refused to take it. In the end, the key to the success in achieving agreement to the conflict is not the material compensation but the ability of the mining company to recognize the importance of these scared sites to the local community. The company decides not to mine around that particular site in order to respect the cultural importance of the site. In contrast, in some other cases – depending on the nature of the conflict - material compensation is decisive and required. For example, the establishment of a conservation area such as a national park often displaces people, which sometimes results in intense conflict, even violence. A number of these conflicts are successfully addressed where agreements are reached mainly due to the appropriate compensation package provided for to those affected by park establishment. In the same vein, material compensation due to river pollution from logging operations that adversely affects community groups is frequently necessary. In one of the community logging cases in Asia, a downstream community perceives logging upstream to cause river pollution. The ability of a mediator to take this issue seriously results in an agreement between the two communities. It is obvious that when issues involved are recognized and adequately addressed, the probability to achieve constructive outcomes is higher.

Furthermore, communication skills – as also one of the major conflict competencies - enable the achievement of successful outcomes in about one quarter of the cases. In a number of cases, we learn that disputants possess adequate communications skills, which help produce agreements. They can communicate so that their views are well-understood. We also observed as crucial that disputants are able to exchange information, deliver concerns to their opponents and maintain positive dialogue. For example, boundary conflicts between neighboring villages are often resolved through the ability of village leaders to communicate the aspiration of their constituents. Another example of the role of communication skills is shown in many mediation cases mentioned in our examples earlier. In contrast to the success stories, our findings suggest that many of the failed-mediation cases are caused by the inability of disputants or mediators to communicate and find common ground. These failures are often attributed to communication deadlock, communication rigidity, and unwillingness to invent new ideas. Furthermore, timely response to a

conflict and a combination of legitimacy and conflict issue also are critical factors. Nevertheless, they are only observed in a small number of cases.

All the critical factors mentioned above are not observed so frequently in the non-successful conflict cases as described in Figure 3.3. Commutation skill, legitimacy, and the ability to address conflict issue are only observed in a small number of cases. Most of these critical factors (i.e. 83%) are not observed at all. It is not surprising that in those cases conflict is not addressed successfully.
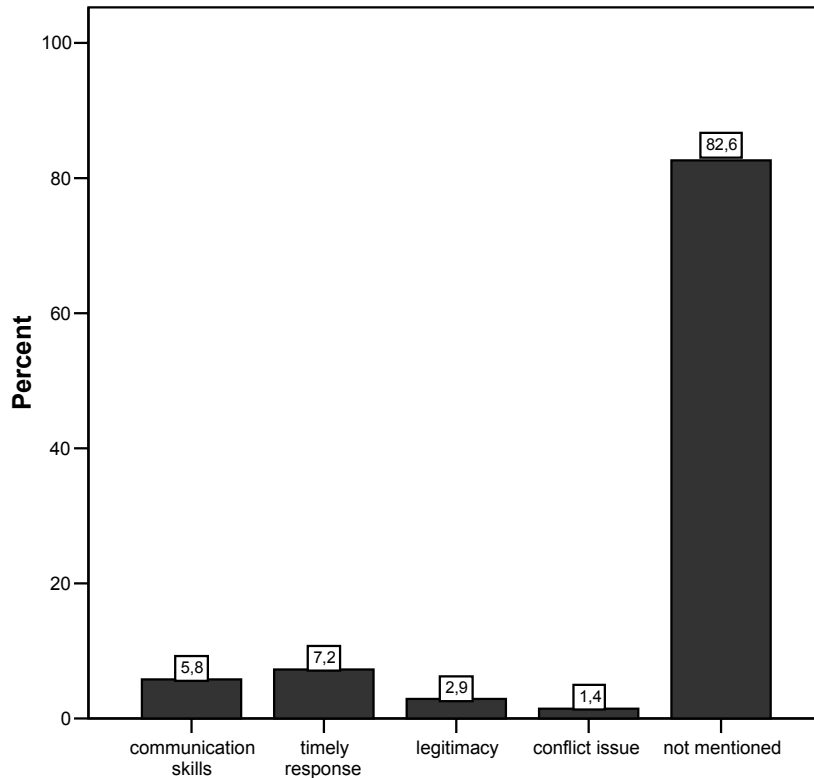
Figure 3.3 Critical factors observed in non-successful cases (n = 69)

3.4.3 Motivation for applying conflict coping strategies

In this part, the motivation for applying certain conflict coping strategy is elaborated. As shown in Table 3.5, negotiation is implemented mainly because it is considered both a familiar and cost-effective coping strategy (i.e. 15 out of 43 cases of negotiation). This is understandable as negotiation is quite familiar to many stakeholders and it is also very affordable compared to other coping strategies like court. Furthermore, in 6 out of 43 negotiation cases, the main motivation is tradition (culture). It is used because negotiation is culturally embedded in society. For example, when a particular conflict emerges, stakeholders normally negotiate. It is the most accessible strategy for addressing the conflict that has been used throughout history.

44

Mediation is mainly applied because of its familiarity as well (i.e. 14 out of 32 cases of mediation). As mentioned earlier, resolving conflict through mediation in forestry can be done through governments, NGOs or even professionally-trained mediators. We also find out in our dataset that, in 11 cases the motivation for using mediation is not explained. Furthermore, the motivation to use negotiation & mediation combined is mainly attributed to tradition. With regard to arbitration, the main motivation for its application is stalemate (in 2 out of 3 cases of arbitration). In other words, when negotiation or mediation result in a deadlock and fail to bring a negotiated agreement, arbitration will be employed and arbitrator will make a decision. For adjudication, the main motivation is also a stalemate. In all cases of adjudication, the main motivation is a complete deadlock combined with the inability of other coping strategies to lead to a negotiated agreement. Finally, as can be expected, coercion is motivated by the possession of power. A more powerful disputant normally coerces to push the opponent to comply with his/her will.

Table 3.5 Motivation of applying conflict coping strategy

No	Coping strategy	Familiar-ity	Culture	Cost effective	Stale-mate	Over-power	Not-explained	Total (%)
1	Negotiation	15	6	13	1	0	8	43
2	Mediation	14	2	3	2	0	11	32
3	Negotiation & mediation	1	11	0	1	0	1	14
3	Arbitration	0	0	0	2	0	1	3
4	Adjudication	0	0	0	5	0	0	5
5	Coercion	0	0	0	0	2	1	3
	Total (%)	30	19	16	11	2	22	100

3.5 Discussion and conclusions

Our results show that despite the existence of a variety of conflict coping strategies, NRM conflict is mostly addressed through negotiation and mediation. Negotiation is being used in 43% and mediation in 32% of the cases. Their wide use can be explained by a number of reasons. They are the most flexible coping strategies and stakeholders are usually familiar with them. Negotiation and mediation have many comparative advantages: they are reasonably inexpensive, straightforward, and cooperative in nature. Moreover, to negotiate is also something culturally embedded in the social systems within which NRM conflict is played out (Sebenius 1992; Buttoud and Yunusova 2002). For example, forest communities are used to

negotiating over many issues such as access to forest products, village boundaries, and resource allocation. Negotiation is part of their daily life. Likewise, government bodies and local stakeholders often negotiate arrangements like benefit sharing from forest products. In a wider scope, negotiation is also common. Looking at the motivation of their application, it becomes clear that negotiation and mediation are being used mainly due to their familiarity and cost-effectiveness.

On the other hand, our results also show that the wide use of negotiation and mediation in addressing NRM conflict has not been very successful in terms of producing a compromise or a negotiated agreement (see Fisher and Ury 1981; Ury 1999; Susskind et al. 2000). Overall success is only shown in 31% of the entire cases being analyzed, meaning that conflict coping strategies in NRM have largely failed. Negotiation, for example, only yields successful outcomes in eight cases while in thirty five cases it has left the conflict inadequately addressed. When conflict is not addressed, it can escalate further as disputants cannot find ways on how their problem can be brought into a negotiated agreement. The unsuccessful outcomes likely can be linked to the critical factors described above. For example, it becomes obvious that in the non-successful conflict cases, these critical factors (i.e. the legitimacy, conflict issues and timely response and communication skills) were mostly absent. In a nutshell, it can be concluded that the ability to create these critical factors also determine the success of the conflict. Moreover, the inability of conflict coping strategies to deliver desirable successful outcomes triggers a critical question as well. For example, why do negotiation and mediation as the major coping strategies in NRM not function very well? Thus far, it also remains unclear under what conditions the use of different conflict coping strategies along with their associated competencies can be effective. It seems that having conflict competency alone does not automatically guarantee the success of addressing conflict as earlier described by Lynch Q.C (2001) and Runde and Flanagan (2007).

What is striking in all cases is that the notion of conflict escalation, i.e. the distinction of different levels of conflict intensities, is absent even though scholars have explicitly argued that understanding conflict escalation is a crucial element in addressing the conflict (Pondy 1967; Pruitt and Rubin1986; Kriesberg 1998). Therefore, it could be argued that the relative low rate of success of conflict coping strategies in NRM is a direct consequence of not considering conflict escalation sufficiently.

In general, conflict escalation can be thought of as a process of increased intensity or worsening of the conflict (Wall and Callister 1995). It refers to increases in the severity of coercive inducements used and increases in the number of participants within a conflict. Only a few studies have elaborated more in depth on it (see Pondy 1967; Pruitt and Rubin 1986). More recently, Glasl proposed an alternative approach to addressing conflict through the so-called conflict capability

framework in which conflict escalation is considered as one of the central elements that need to be carefully examined prior to addressing the conflict (see Galsl 1997; 1999). His nine-stage escalation heuristics depicts nine major stages of escalation of inter-individual conflict ranging from the low level (e.g. hardening, debate) to high level escalation (fragmentation of enemy, together into an abyss). The stages are arranged in a downward movement as increases in conflict intensity progressively activate deeper and more subconscious levels; both in people and in groups, until these people or groups completely lose their self-control (the so-called "point of no return", where it is most likely that destructive outcomes are inevitable). Or as Glasl depicts it: where we no longer have a conflict but "conflict has us". The advantage of Glasl's model is that conflict coping strategies can be linked systematically to escalation levels. As shown in Figure 3.4, he clearly delineates internal and external capacities required to address conflict at different escalation levels. In general, the more intense the escalation level, the more conflict coping strategies depend on external sources such as mediators or arbitrators
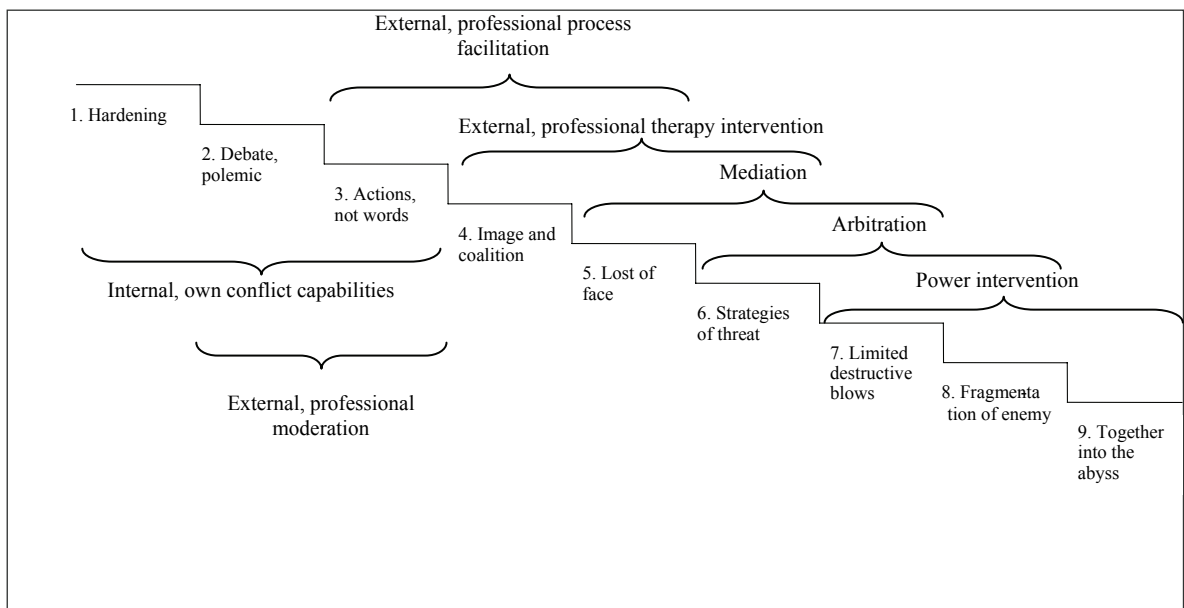
Figure 3.4 Glasl escalation model

The escalation model has to be viewed in the wider context of Glasl's conflict capability framework (Glasl 1997, 1999). Its main assumption is that conflict is exerting a positive force for change. If destructive conflict escalation can be prevented, conflict can bring an improvement to the socio-political environment. Another important characteristic of conflict capability is that it stresses the necessity to address conflict strategically, meaning that it is not only the current conflict that needs to be addressed but also the necessity to develop capacities to anticipate future

conflict events. As such, conflict capability can be considered as having a strategic view on conflict. Table 3.6 summarizes the assumption and objectives conflict capability in comparison to the classical conflict approaches as discussed earlier.

Table 3.6 Approaches to addressing conflict

Approach	Main assumption	Main objective
Conflict resolution	Every conflict has to be resolved	Terminating the conflict
Conflict management	Conflict is complex and can never be entirely resolved	Finding a compromise
ADR		Negotiated agreement
Conflict capability	Conflict is a having constructive force	Preventing destructive conflict escalation

The notion of conflict capability suggests that addressing conflict must take into account conflict escalation. Beside a clear delineation of escalation level, the notion of conflict capability also underlines the necessity to define conflict distinctly so that it can be separated from normal differences or incompatibilities. Conflict is defined distinctly as an experience of impairment due to the behavior of another actor. Therefore, what needs to be addressed is impairment not differences or incompatibilities. In summary, conflict capability requires escalation and impairment be linked to coping strategies. Finally, conflict capability also suggests defining the "point of no return" so that the use of coping strategies can be more effective.

Conflict capability has proven increasingly fruitful in several fields (e.g. Jordan 2000; Zapf and Gross 2001; Mason and Rychard 2005). In line with our earlier argumentation explaining the failure of many conflict coping strategies in NRM, incorporating the conflict capability approach in NRM contexts seems to be very promising. To examine the potential of the conflict capability approach in NRM contexts it needs to be scrutinized empirically. Two research questions feature prominently. First, it is necessary to explore the distinctive conceptualization of NRM conflict and the range of impairments associated with it. Second, conflict escalation in NRM needs to be explored systematically. Only after we fully comprehend escalation stages and patterns, can we effectively link different capacities for addressing NRM conflict.

Acknowledgements

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4

Conflicts in natural resource management: toward conceptual clarity

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Abstract

At least two major problems exist in the study of conflict in natural resource management (NRM). First, in most studies conflict is only vaguely defined. Theoretical and conceptual confusions exist. Second, most studies are based primarily on specific cases and they have been less successful in generating general conclusions applicable to multiple settings. The current study attempts to address these two problems. We provide a theoretical review of conflict and argue that an "impairment model" can overcome the existing conceptual confusions. It distinctively characterizes conflict as a two actor constellation and as the experience of an actor's behavior as "impairment". It also illustrates factors that induce such impairing behavior, which are called "sources of impairment". Furthermore, in our attempt to generate conceptual clarity of NRM conflict, we use the model to analyze a large number of case studies from multiple settings. We identify a number of impairments commonly observed across cases, namely: restricting access, forcing objective, degrading the environment and abusing authority. The presence of these impairments distinguishes NRM conflict from other types of antecedent conditions. Factors that induce these impairments can be classified into: competing demands, eco-centrism, unclear boundary, scarcity, legal pluralism, non-compliance, and weak leadership. We demonstrate how these factors influence a particular impairment.

Based on our analysis, we propose a conceptual framework that depicts general patterns of NRM conflict. We discuss the potential uses of this framework in relation to empirical study and effective conflict management strategies.

4.1 Introduction

The volume of writing on natural resource management (NRM) conflict and the diversity of subjects covered in this work have grown rapidly (Buckles 1999; FAO 2000; Susskind and others 2001). However, one of the less explored issues is the conceptual underpinning of NRM conflict itself. This paucity can be linked to the fact that conflict is often taken for granted and is commonly defined in exceedingly vague terms. In most literature it is defined broadly, for example, as differences or incompatibilities in interests, goals, power, values or perceptions (Coser 1956; Bartos and Wehr 2002). Such broad definitions lack rigor and fail to distinguish conflict and its antecedent conditions (Fink 1968; Dadrian 1971; Glasl 1999).

An additional feature of NRM conflict research is that it is based primarily on individual case studies with all the limited scope and context that each case implies (Castro and Nielson 2003). While improving our knowledge on specific cases, this has been less successful in generating generalized conclusions based on and applicable to multiple settings. For instance, general patterns of NRM conflicts such as its distinctive features and underlying sources remain poorly understood.

Given the need for a more rigorous conceptualization of conflict and the call for more general analysis, the current study analyzes cases from multiple settings while seeking general conclusions regarding the distinctive features of NRM conflict. In the next section, we review existing conflict theories, indicate major difficulties associated with them and argue that a conceptual definition based on "impairment" is distinctive, thus used as a starting point for multiple case analysis. In the analysis, we search for patterns of NRM conflict, such as: impairment, its sources and the relationships between them. Based on the analysis, we propose our "Conflict Impairment Framework", which distinctively characterizes NRM conflict. The general analysis as presented here is intended as called for by Druckman (2005) to provide enlightenment, contribute to theories and open a new scientific debate.

54

4.2 A Review of Conflict Theories

Scholars have long struggled to find an adequate definition of conflict. The most comprehensive review of definitions, concepts and models can be found in Fink (1968), Schmidt and Kochan (1972), and Wall and Callister (1995). Amongst the approaches used to conceptualize conflict, three are especially common: party-based approaches, differences/incompatibilities approaches, and process-based approaches. We briefly outline each.

A number of social scientists have developed a general classification of conflict based primarily on the nature of the parties and the levels of social structure that they represent (Sorokin 1928; Ross 1930; Mack and Snyder 1957). Conflict is distinguished into interpersonal and intergroup antagonisms. Meanwhile, Chase (1951) and LeVine (1961) define conflict by ordering types of parties according to the levels of social structure, such as: intrafamily, intracommunity, intercommunity and intercultural. Furthermore, Boulding (1962) distinguishes three main types of parties: person, group and organization. However, Galtung (1965) argues that one need only distinguish two types of parties: individuals and collective entities. By combining these two basic dichotomies Galtung illustrates four categories of conflict: intrapersonal, interpersonal, intracollective and intercollective conflict.

The most significant conceptual contribution from party-based classification is the understanding that every social conflict can be deconstructed into the unit of actors. The contribution of scholars in this field is argued to be the pioneer in the later work on actor-oriented conflict. However, Fink (1968) contends that some of the classifications are merely an illustrative, non-exhaustive list, with no systematic grounds for distinguishing different types of conflict.

In the development that follows, scientists develop conflict models based on differences or incompatibilities. For instance, Dahrendorf (1958) and Bartos and Wehr (2002) refers to conflict broadly as all relations between a set of individuals that involve some degree of incompatible objectives and goals. In contrast, others advocate the use of the term of conflict in a more specific sense. Deutsch (1973), for example, views conflict as incompatible activities when one party is interfering, disrupting, or in some other way making another party's actions less effective. Another influential model is introduced by Fisher and Ury (1981). Focusing on negotiation, they state that conflicts are generated when individuals or groups take positions that are contradictory. Positions are simply the desired outcome actors have in a conflict. Very often actors become too attached to a particular position, a challenge to it becomes personalized and defending it becomes a necessary option. Due to the difficulty in resolving position, Fisher and Ury argue that position must be deconstructed into interests to see what is acceptable to each actor; behind every position is interest – the reasons why people hold different positions. In a similar

vein Pruitt and Rubin (1986) define conflict specifically as a perceived divergence of interest, or a belief that the party's current aspirations cannot be achieved simultaneously. With regards NRM conflicts, a comprehensive coverage of conflict definitions based on differences or incompatibilities can be found in Daniels and Walker (2001).

Critiques are also conveyed to the differences-based approach as they are said to be too inclusive and broad. They tend to regard all social settings as conflict, thereby denying the existence of non conflict situation. For example, Fisher and Ury's model while widely used in negotiation does not demarcate clearly under what circumstance, for example, competing interests can be classified as a conflict situation. Empirical evidence suggests that incompatible goals, interests, views or perceptions are common without necessarily representing conflict situations. Inadequacies of differences-based definitions are also echoed by Schmidt and Kochan (1972). They contend that there are too many value laden definitions of conflict, the dichotomy between broad and specific definitions as well as confusions between several terms (e.g. conflict, competition, incompatibilities and differences).

In order to overcome these critics, other scholars develop conflict models based on the underlying process dimensions. One of the earliest was proposed by Pondy (1967) who depicts conflict as a dynamic process involving a sequence of stages, namely: latent, perceived, felt, manifest and aftermath. Following the process approach with specific application in the NRM fields, three models are most influential: scarcity, political ecology and environmental framing. The scarcity model, often called the "neo-Malthusian model", argues that conflict is inevitable due to the increased scarcity of renewable resources, such as: oil, water, forests and land (Kaplan 1994; Homer-Dixon 1999). In contrast, most political ecologists do not accept the simplistic linkages between increased environmental scarcity and conflict (Peluso and Watt 2001). They contend that conflict is largely determined by a set of broader processes of change within specific historical context and the interplay of local and extra-local social and ecological processes (Turner 2004). In this view, the environment is the arena of contested entitlements, a place in which conflicts or claims over property, asset, labor, and access play themselves out (Neumann 1998).

Furthermore, "environmental framing model" views conflict as perception driven (Lewicki and others 2003). Framing is the process of constructing and representing our interpretations of the world around us. There are several frames to interpret environmental conflict. For instance, the "identity frame" sees conflict as inevitably arises when people perceive that their identities are threatened. In contrast, the "characterization frame" views conflict as a result of the attribution of blame and causality that we make about our experiences and about what others have done to shape our experiences: conflict is often caused by what is called "attribution error",

i.e. blaming others. Other frames (e.g. social control, power, risk frames) similarly emphasize the role of perception in shaping conflict.

The models described above have been significant in enhancing our understanding of conflict. They have included multiple dimensions to conceptualize and reflect upon the dynamics and complexity of conflict. Despite their substantial contribution, critiques and objections remain. Schmidt and Kochan (1972), for example, contend that Pondy neither provides a criterion for distinguishing one stage from another, nor a conceptual distinction between latent and manifest conflict. Most importantly Pondy confuses conflict and its antecedent conditions (latent stage). Furthermore, the same argument is also true for the scarcity, political ecology and framing models. For instance, scarcity or process of environmental rehabilitation does not necessarily correspond to conflict. Empirically, differences in perception exist but they may not materialize into conflict. Thus, what needs to be clarified is how conflict can be distinguished from non conflict or antecedent conditions.

In response to the disconcerting conceptual basis of conflict, Glasl (1997; 1999) suggests the "impairment model". He distinguishes conflict as a situation in which an actor feels "impairment" from the behavior of another actor because they have different perceptions, emotions and interests (Figure 4.1). The experience of an actor's behavior as impairment is the defining element for conflict, thereby providing a single criterion to distinguish conflict from non-conflict situations. Differences in perception, emotion and interest are the sources of conflict or the "sources of impairment", which should not be confused with actual conflict situation.

In line with the earlier actor-oriented classification, the impairment model illustrates that a conflict is always represented by two actors: one actor (A) acts to impair another (B). Nevertheless, it denies intrapersonal conflict (Galtung 1965) because a conflict cannot happen if there is no counterpart. The second most distinctive characteristic of the model is that conflict is clearly distinguished from antecedent conditions such as the presence of differences. The distinction is made by the "impairment", which can be defined as action that impairs another actor (action-oriented). Third, the model suggests that "impairment" can be further explained by the "sources of impairment" (antecedent conditions), such as differences in perception, interest and emotion; those conditions influence actors' actions in the course of conflict.
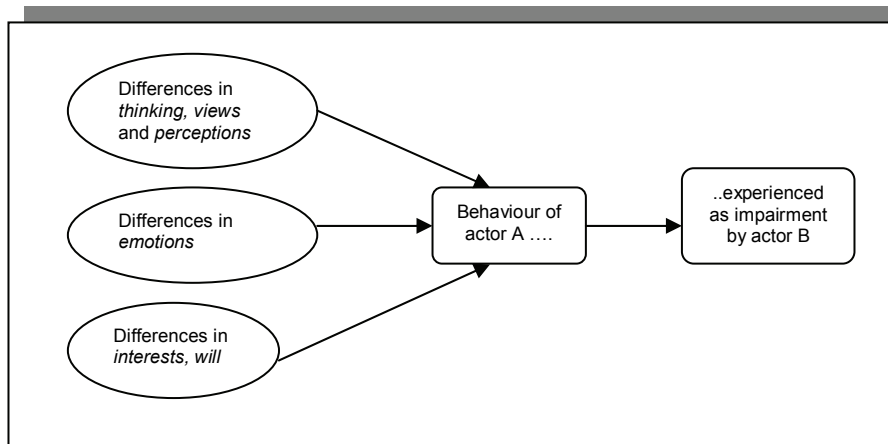
Figure 4.1 Impairment model (adopted from Glasl 1997; 1999)

First empirical applications of Glasl's model indicate the fruitfulness of its distinctive features, also in NRM contexts (Yasmi 2002; Marfo 2006). However, all applications have been carried out simply in the case study fashion. Further investigation is needed to find out if NRM conflict can also be distinctively characterized based on large number of conflict cases. In other words, we are questioning if impairment could be the construct on which to conceptualize NRM conflicts in general. If so, the next question is whether the sources of impairment and their relationships with impairment can be identified. To achieve this, we carry out extensive review of NRM conflict case studies.

4.3 Methods: Assumptions, Case Selection and Analysis

4.3.1 Assumptions and Case Selection

We employ a broad definition of NRM to include all kinds of resource management, such as: forestry, fishery, land allocation, agriculture, and mining. It has been widely assumed that all resources in these fields exhibit common characteristics. For instance, their use and management are associated with multiple stakeholder groups (FAO 2000; Hellstrom 2001). Most of them are categorized as "common pool resources" with complex institutional arrangements; they are considered low in terms of excludability and partial in terms of rivalry (Ostrom 1990). Moreover, they have material and cultural values and embrace common problems, such as: free-riders, contested legitimacy of governing actors and unavoidable conflict.

Adopting these assumptions, we selected case studies that have been published in the peer reviewed journals from the following databases: *Elsevier/Science Direct, SpringerLink, JSTOR,* and *Taylor and Francis*. Given the wide use of these databases, we anticipated that they would include major journals that covered NRM

conflict studies. We hunted for relevant cases using keywords that range from general to specific ones. General keywords, for example, include "NRM conflict", "resource conflict", "environment* conflict", and "nature conflict". Specific keywords consist of all kinds of resource management (e.g. forestry, mining, fishery) and conflict models discussed earlier. Combinations of terms were used to ensure that all relevant cases were selected.

As expected, the results were enormous with more than 1, 000 hits. However, only about 170 can be considered empirical case studies in NRM fields. To filter further the selected cases we employed the Glasl model, i.e. cases were selected if "impairment" was clearly indicated or could be inferred. We ended up with 80 accessible cases. Using a snowball approach by looking at cited references at the end of each selected case (Druckman 2005), we also added cases taken from conflict studies done by various organizations and institutions, such as: European Forestry Institute (EFI), FAO, Center for International Forestry Research (CIFOR) and World Bank. Finally, we had 118 cases that we considered sufficient for analysis. Our final list consisted of 62 forestry conflicts (around 50% of the whole cases).

4.3.2 Searching for Impairment, the Sources of Impairment and Their Relationships
As described by Glasl (1999), conflict can be deconstructed into impairment and that impairment can be further explained by its sources. To search for impairment and its sources we use content analysis procedures (Krippendorff 1980; Mayring 2000, Bernard, 2002). Our approach to content analysis follows the five steps of so called "inductive category development" (Mayring 2000): determination of category definition (based on research questions or objectives), step by step (iterative) formulation of inductive categories with open coding, revision of categories after 50% of the materials (formative check of reliability), final working through the texts (summative check of reliability), and interpretation of results (e.g. frequencies). The procedure is iterative as it requires adjustments of category definition and coding during analysis.

The first part of content analysis is aimed at identifying the impairments. We searched in every case study for all types of actions that qualified as impairment. These were coded and revised as required. To test whether "observed" categories of impairments were significant, we carried out the non-parametric tests available within SPSS package. The second part was the identification of the sources of impairment. We first checked the impairment (i.e. action) and then looked for conditions or factors that led to such action (Glasl, 1999). Again, we inductively determined a number of categories. We acknowledge that inductive category development through content analysis is neither simple nor wholly objective. As contended by Krippendorf (1980:76), "How categories are defined … is an art. Little is written about it". Mayring (2000) agrees that there is no formulaic guideline for

inductive category development; it is more of an art than a science. We elaborate and revisit these issues in the Result section to describe how we derive our categories.

The third part of our analysis focused on finding the relationships between impairment and its sources. We tried to understand through descriptive statistics which sources had high or low influence to a particular impairment. Based on our analysis of these relationships, we developed a framework that describes major impairments involved in NRM conflict and their sources. We called this "Conflict Impairment Framework".

4.4 Results

4.4.1 Impairment in NRM Conflict

Our analysis derives four categories of impairment as presented Table 4.1 – presented according to their observed frequencies in our dataset. These categories are developed primarily based on the assumption that all actions that fall within a particular impairment category represent more or less similar types of action, and thus being inductively grouped under one category. For instance, "forcing" objective represents all actions that are intended to uphold or pursue management objectives or goals of a particular stakeholder group at the cost of other groups. Adhering to a particular objective means striving to achieve it. For instance, stakeholders having conservation agendas (green NGOs) may put pressure on logging or mining companies through media campaigns. They may demand a logging moratorium, criticize forestry practices or force government to close down a particular mining company. Timber, mining companies or big land holders may use force to protect their activities. They employ military or paramilitary units to expel those who hinder their operations. They may also use intimidation to ensure that their activities are not interrupted or slowed. Furthermore, extractive activities that damage sacred and ritual places can also be perceived as impairment, thus triggering conflict.

"Restricting" access denotes all actions that are intended to prevent others from having access to a particular resource and at the same time secure one's own access. The manifestation of such actions vary in terms of scale and intensity, such as: squatter invasion, blockading logging roads, eviction, forced resettlement, occupation of a certain area, etc. These actions are often perceived as impairment in the course of conflict. Meanwhile, "degrading" the environment embodies all actions that result in environmental degradation or pollution. Management activities, such as: mining, logging, fishing, and land clearing, if done carelessly can result in land degradation, river contamination, soil erosion, and air pollution. For instance, in forestry activities the destruction of communities' agricultural land and the pollution of their rivers due to logging operations often cause intense and lasting conflicts. In

mining activities channeling waste to the river or unsustainable mining practices trigger many negative environmental impacts, which are experienced as impairment by many.

"Abusing" authority refers to the concealing of vested interests. For example, with an exclusive authority and higher social status traditional leaders can lease communal lands or forests to private companies without proper agreement from the communities whom they represent. They may be bribed individually for the approval of logging or mining permits. Abusing authority including act of corruption often felt as impairment because of the unfair distribution of benefits, inability to counter decisions provided the top-down structure of the leadership and the perceived threats to resources of importance to community's livelihood at large.

Table 4.1 Impairment in NRM conflict (N = 118)

Action perceived as impairment	Category	Frequency	(%)
Conservation agenda imposition, call for logging moratorium, green campaign, protest of green NGOs, criticism to forestry practice, destruction of sacred places, destruction of rituals places, logging activities, the use of military in logging, intimidation by mining companies, verbal class with private companies, protest again mining, protest again logging plan, critiques to government, seizing equipment, etc.	Forcing (objective)	63	53
Squatter invasion, picketing of companies, blockading logging road, imposed restriction, blockading ports, removal by force, eviction, forced resettlement, displacement, fencing land, land invasion, closing the road, occupation, removal of local people from their own land by big plantation estate, etc.	Restricting (access)	51	43
River pollution by mining, river pollution by logging, air pollution, destruction of ritual places, ruins to non timber forest products due to logging and mining, destruction of sacred places, land contamination, land degradation, careless waste disposal, noises due to mining and logging, etc.	Degrading (environment)	45	38
Local leaders make logging deal with companies, local leaders committed bribery, leasing communal forests, etc.	Abusing (authority)	7	6

As noticed in Table 4.1, the frequency of each impairment and its percentage are given in the last two columns. The non parametric Cochran's Q tests (a test for related data with categorical variables and the number of comparison groups are more than three) reveal that all categories exhibit different expected frequencies ($p < 0.01$). However, when we locate our test to only three impairments (excluding "abusing"), the result shows that the three impairments (i.e. "restricting", "forcing" and "degrading") exhibit the same expected frequencies ($p = 0.108$). A further detailed McNemar tests (a test to see the significant differences or similarities between a pair of variables) reveal that the expected frequency of "abusing" is significantly different each time it is paired with others ($p = 0.000$). We can thus conclude that there are only two different expected frequencies in our data set, namely: "abusing" and others (i.e. "restricting", "forcing" and "degrading").

4.4.2 The Sources of Impairments in NRM Conflict

We inductively derived seven categories of sources of impairment of NRM conflict, namely: competing demands, non-compliance, eco-centrism, unclear boundary, legal pluralism, scarcity, and weak leadership (Table 4.2). Our assumption is that each category represents similar conditions to induce impairment. As can be noted the sum of all categories exceeds 100%, as some impairments have multiple sources at the same time. They will be elaborated in the followings from the most to the least observed ones on our dataset.

"Competing demands" is about management options of the resources, i.e. in what way they should be managed. Generally speaking, two main options exist based on two fundamental ideological convictions: resource conservation and resource extraction. The earlier emphasizes the protection of resources from destructive uses in order to maintain the integrity and sustainability of the resources. Resource protection might be realized, for instance, by establishing conservation or protected areas (e.g. national park, bio-reserve, sanctuary, protection forest). On the other hand, resource extraction emphasizes the use of resources for economic development and growth. Resources are seen as capitals that are important for development purposes. Due to the presence of these competing demands, NRM inevitably continues to be an arena of contestation as different groups hold different values strive to achieve their objectives. The classical clash between conservationists and timber industries, for example, is the manifestation of competing demands between these groups. Additionally, in NRM stakeholders often have certain cultural attachment to the resources, such as: sacred forests, ritual places, burials and ancestor land. The cultural attachment very often can influence the direction of resource management. As observed in 36% of the cases, the existence of competing demands is one of the favorable conditions for NRM conflict.

In about one third of the cases the source of impairment can be summarized as "non-compliance" to the environmental regulations. For example, there are many activities such as logging or mining ignoring these regulations. They do not out adequate efforts to meet minimum and socially acceptable requirement of environmental impacts. This means that ideally every management activity such as logging, mining, land clearing and any other kinds of resource extraction activities should take into consideration the environmental impacts in order to prevent unnecessary conditions, such as: water or air pollution and land contamination. However, in many NRM cases this requirement is rarely met. The main reason for this is the unwillingness to commit to higher operational and production cost, unclear environmental regulations, bad law enforcement, etc. Control over resource extraction activities by the state and related agencies are also weak due to the lack of resources. As a result of this phenomenon logging and mining operations are done in less environmentally friendly ways; air pollution, destruction to arable land and contamination to river streams are thus not uncommon, leading to conflict.

Another source of impairment can be summarized under the heading "eco-centrism". It reflects a deep concern of a group who has a very strong ecological preference. Ecological preservation is above everything. As a result of this strong preference this group sometimes is labeled "radical". For instance, this group may struggle to give "a voice to those who cannot speak for themselves" such as trees and animals. They take radical ways to achieve their objectives, which often against the will of others. Eco-centrism can trigger NRM conflict particularly due to the failure to take into account the needs or concerns of others (i.e. observed in 28% of the cases).

 "Unclear resource boundaries" relates to spatial division of resources among different stakeholder groups. In theory this division should enable them to recognize the area within which they have rights to manage, control and utilize the resources. However, in practice this division is often vaguely defined or absent. For example, the boundaries between state and community forests frequently overlap. The boundaries between communal land and timber estate are ambiguous. Likewise, the boundaries of village territories belonging to forest or fishing communities are often unclear. These phenomena are favorable conditions for inducing actions that could impair others (impairment), thus causing conflict (i.e. 25% of all NRM conflict being analyzed can be attributed to these conditions).

Table 4.2 Sources of impairment in NRM conflict (N = 118)

Observed sources of impairment	Category	Frequency	(%)
Extractive management objectives, development agenda, putting higher priority on economic growth, cultural importance of nature (e.g. rituals, sacred places), etc.	competing demands	43	36
Higher production cost, unclear environmental regulations, weak control of the state on the operation of private companies, bad low enforcement, government is not knowledgeable on environmental issues, government lack resources to control the operation of private companies, such as: logging and mining, etc.	non-compliance	41	35
Strong ideological value (e.g. conservation ideology), religious imposition on conserving the nature like tropical forests, commitment to protect those who cannot speak for themselves.	Eco-centrism	33	28
Overlapping boundary between state land and community's forests, boundary between communal land and timber estate is ambiguous or contested, inter-village boundary is absent, confusing boundary of fishing area, no boundary of agricultural area among forest dwellers, etc.	unclear boundary	29	25
The dominance of state law, customary regulations and state law are contradictory, international conventions are not well understood, denying customary land rights of aboriginal people, overlapping land claims, regulations on fishing are numerous and different from one settlement to the others, etc.	Legal pluralism	25	21
Decreasing amount of trees, declining fish stock, less agricultural land for small farmers, less possibility to harvest non timber forest products, limited amount of clean water, shortage of water, declining number of arable land, unequal land distribution/ownership, decreasing spotted owl population, water shortage/drought, lost of rain forest, destruction of Amazon, forest lost due to fire, etc.	Scarcity	22	19
Local leaders are difficult to be held accountable, local leaders have higher social status, no democratic process in establishing leadership, etc.	Weak leadership	6	5

Furthermore, "legal pluralism" is the presence of different set of rules and regulations that regulate resource management. These regulations can range from

international conventions (e.g., convention on biodiversity, climate change) to national and traditional laws. Very often one regulation is not compatible with the others. Among the common examples is the incompatibility between state and traditional laws and the failures of state laws to accommodate and respond to local realities. State laws often do not acknowledge communal forest management and communal forest lands; all lands are said to belong to the state. A never ending struggle for recognition has become one of the most challenging phenomena in NRM; not to mention the hegemony and arrogance of powerful stakeholders such as government. The situation, as described as here legal pluralism, induces NRM conflict in 21% of conflict cases being analyzed.

"Scarcity" relates to the decreasing resource stock due to the continued exploitation and unsustainable management of the resource. For instance, the unsustainable management of forests has led to the significant amount of forest lost, such as in the Amazon and other tropical countries. Other resources also become scarce, such as: arable land, fish stock, water, etc. Scarcity heightens competition among stakeholders and often results in marginalization of some powerless groups. Our analysis shows that resource scarcity explains 19% of NRM conflict. Although only observed in six cases, the source of impairment may be associated with "non accountable leadership". In many traditional systems, leaders are not chosen democratically. Leaders are normally represented by those having higher social status. In such situation leaders are difficult to be held accountable upon their decisions and actions. These situations are volatile because leaders engage in illegal transaction. They may misuse their position, for instance, to make logging deal with private companies.

4.4.3 Relationships between Impairment and Its Sources

Table 4.3 illustrates each impairment and its corresponding sources along with their observed frequencies. For example, for "restricting" access and "degrading" the environment, we observe all the seven sources. Meanwhile, "forcing" objective and "abusing" authority are explained by six and five sources respectively. The second column of the table indicates the frequency of each impairment (bold) and each observed source (italic). The third column gives the percentages of sources of impairment within each category of impairment.

It is rather difficult to define the relationship between a particular impairment and it sources. However, we propose three descriptive categories of how a particular source relates to a particular impairment based on their observed frequencies (see Table 4.3, last column). If a particular source is observed in more than 40% of the cases under each impairment category we categorize it as having "high" influence on the impairment. High influence indicates that the source explains an impairment at least in four out of ten cases; considering that we have seven possible sources for

each impairment, 40% would be considered high enough to determine an impairment. The second category is called "moderate" influence. A particular source is said to have moderate influence if it is observed in 10% to 40% of the cases under each impairment category. Finally, "low" influence is assigned to the sources that are only observed very rarely, i.e. in less than 10%.

Table 4.3 Impairment and its sources (N = 118)

Impairment/sources of impairment	Observed frequency	(%)	Influence
1.Forcing (objective)	**63**		
• *Unclear boundaries*	*10*	*16*	Moderate
• *Scarcity*	*9*	*14*	Moderate
• *Legal pluralism*	*13*	*21*	Moderate
• *Non-compliance*	*12*	*19*	Moderate
• *Weak leadership*	*0*	*0*	Absent
• *Competing demands*	*43*	*68*	High
• *Eco-centric concerns*	*33*	*52*	High
2. Restricting (access)	**51**		
• *Unclear boundaries*	*29*	*57*	High
• *Scarcity*	*22*	*43*	High
• *Legal pluralism*	*25*	*49*	High
• *Non-compliance*	*12*	*24*	Moderate
• *Weak leadership*	*3*	*6*	Low
• *Competing demands*	*16*	*31*	Moderate
• *Eco-centric concerns*	*10*	*20*	Moderate
3. Degrading (environment)	**45**		
• *Unclear boundaries*	*6*	*13*	Moderate
• *Scarcity*	*8*	*18*	Moderate
• *Legal pluralism*	*7*	*16*	Moderate
• *Non-compliance*	*45*	*100*	High
• *Weak leadership*	*2*	*4*	Low
• *Competing demands*	*7*	*16*	Moderate
• *Eco-centric concerns*	*0*	*0*	Absent
4. Abusing (authority)	**7**		
• *Unclear boundaries*	*4*	*57*	High
• *Scarcity*	*2*	*29*	Moderate
• *Legal pluralism*	*1*	*14*	Moderate
• *Non-compliance*	*3*	*43*	High
• *Weak leadership*	*6*	*86*	High
• *Competing demands*	*0*	*0*	Absent
• *Eco-centric concerns*	*0*	*0*	Absent

To give examples on how to read the table, let's focus on the high influencing sources. For example, if we look at the first impairment "forcing", it becomes clear that such impairment is induced mainly by two sources: "competing demands" and "eco-centrism". The second impairment "restricting" is mainly induced by "unclear

boundary, "scarcity" and "legal pluralism". Furthermore, "degrading" is mainly as a result of "non-compliance". These results thus indicate a number of critical points regarding sources of impairment and the conditions that lead to the impairment. First, it can be concluded that certain conditions (sources of impairment) lead to certain impairing actions in NRM. For example, when there is a situation of "competing demands", it is most probably that action such as "forcing" will materialize. Similarly, "weak-leadership" highly induces the act of "abusing" authority but not the act of "degrading" the environment. Second, it becomes obvious that a particular impairing behavior is not only caused by certain sources but very often by multiple sources at the same time. This phenomenon reinforces the notion of complexity involved in NRM.

4.5 Discussion and Conclusions

The motivation of this study is twofold: to address the conceptual ambiguity and to understand general patterns of NRM conflict. As has been shown throughout the conceptual discussion most of conflict theories are vague. Nevertheless, the impairment model (Glasl 1997; 1999) is argued to be different from most of the other concepts. It distinguishes conflict from its antecedent conditions by introducing "impairment". The experience of an actor's behavior as impairment becomes the only defining element for conflict. In this way, we argue that the model is distinctive. Although the impairment model is developed primarily for inter-individual conflict (Glasl 1997; 1999), this study shows that it is also applicable for NRM conflict. Empirical identification of impairment is possible by looking at specific actions performed by adversary. In this regards, impairment approach helps conceptualize NRM conflict distinctively as it allows the separation of conflict from the normal politic of interest struggle, differences, disagreements and other types of antecedent conditions. Impairment approach thus can overcome conceptual confusions that have long existed.

We have shown four major impairments in NRM conflict. However, what becomes evident is that "abusing" authority differs significantly in terms of its expected frequencies compared to three other impairments. "Abusing" authority is only observed in small number of isolated cases. Perhaps, this phenomenon can be explained by the fact that "abusing" authority is too sensitive to be exposed. For example, the scholarly work on this issue may be limited due to its sensitivity. Although only observed in small number of cases, it might be unwise to ignore it as evidence already shows that it can spur conflict. While impairment can be defined, we can also conclude that in many NRM conflicts it is not clearly described. This is proved by the fact that many cases had to be excluded during the selection processes

(see method section). Given this fact, we can conclude that most NRM studies at the moment still follow conventional approaches, e.g. differences-based approaches or process-based approaches. As argued earlier, none of these approaches distinctively define conflict.

Furthermore, the sources of impairment in NRM conflict can also be identified by looking at conditions or factors that induce a certain action. The sources of impairment in NRM conflict vary widely. In inter-individual conflict, Glasl describes three sources (i.e. perception, emotion and interest). Meanwhile, our findings show that in NRM conflict the sources of impairment are more specific, such as: "unclear boundaries", "scarcity", "legal pluralism", "competing demands", etc. Moreover, what becomes obvious is that impairment can be explained by more than one source at the same time. For instance, "restricting" access is explained by the all seven sources (see Table 4.3). Other impairments are also the same; they are being explained by the multiple sources at the same time. This phenomenon allows us to conclude that the sources of NRM conflict are multifaceted. NRM conflict is rarely about single factor or condition. This finding thus reinforces the notion of the complexity of NRM conflict.

Moreover, the way a particular source relates to impairment differs in many ways (see Table 4.3). As described earlier, for instance, "restricting" access is highly explained by "unclear boundaries", "scarcity" and "legal pluralism" while "degrading" the environment is highly explained by the "non-compliance". Likewise, "forcing" objective is highly influenced by two sources (i.e. "competing demands" and "eco-centrism"), however, these sources are not observed at all in the case of "abusing" authority.

Based on the analysis of impairment and its sources, we propose a conceptual framework that describes common patterns of NRM conflict (Figure 4.2). The "Conflict Impairment Framework" as we call it illustrates the four impairments and their respective sources. The framework summarizes all the results that we have presented earlier. It demonstrates all impairments and their sources but excluding sources that have "low" influence (refer to Table 4.3). We exclude low influence sources as they are only rarely observed. As can be noticed, three impairments (i.e. "forcing", "degrading" and "restricting") are explained by the same set of sources while "abusing" is explained by a different set of sources. This further strengthens the earlier finding that "abusing" differs significantly from other impairments. Another observation is that four sources (i.e. "unclear boundaries", "scarcity, "legal pluralism", and "non-compliance") explain all the impairments while "week leadership" only explains "abusing".

We intentionally call it a framework rather than a universal model, as it allows to derive hypothesis for empirical investigation which can eventually result in a comprehensive theory on NRM conflicts. Several hypotheses based on the current

framework can be proposed, for example, "competing demands" (i.e. whether to manage the resource for conservation or exploitation) lead to action such as "restricting", "degrading" or "forcing" own management objective. Or we can also hypothesize that "degrading" the environment that bring about many lasting conflict is primarily caused by "non-compliance". In contrast, a different set of hypotheses that are contradictory to the current framework can also be proposed, for example, "abusing" authority is not only determined by five sources but can also be explained by "competing demand" or "eco-centric concern".

Second, we foresee that the framework can also be used for proactive approach to conflict management. We may be able to take preventive actions to avoid conflict from emerging or escalating by anticipating and addressing the sources of impairment timely. Third, in actual conflict situation we may also use the framework to inform what kinds of issues are at stake (sources of impairment). For instance, if our assessment that forestry conflict is caused by "restricting" access, then the focus that must be addressed is finding its sources, e.g. these sources may be related to "unclear boundaries", "scarcity", "legal pluralism" or combination of those factors. When we know the sources of the conflict, we should be able to devise appropriate strategies to manage it effectively. In conclusion, the framework may offer possibilities for conflict analysis and strategic conflict management strategies. For future research it would be useful to investigate the patterns of conflict in a more specific NRM field.

We fully realize that the current framework is developed in the absence of situational contexts, which may only result in a general level of abstraction. Nevertheless, as contended by Druckman (2005), the general level analysis is also important in order to shed light on and enhance our understanding of cross-cutting issues involved in NRM conflict. It has the potential to transfer learning from one situation to another and also contribute to the improvement of existing theories. Our future task is to bring the framework back into empirical situational contexts and develop it further into a consistent model of NRM conflicts.
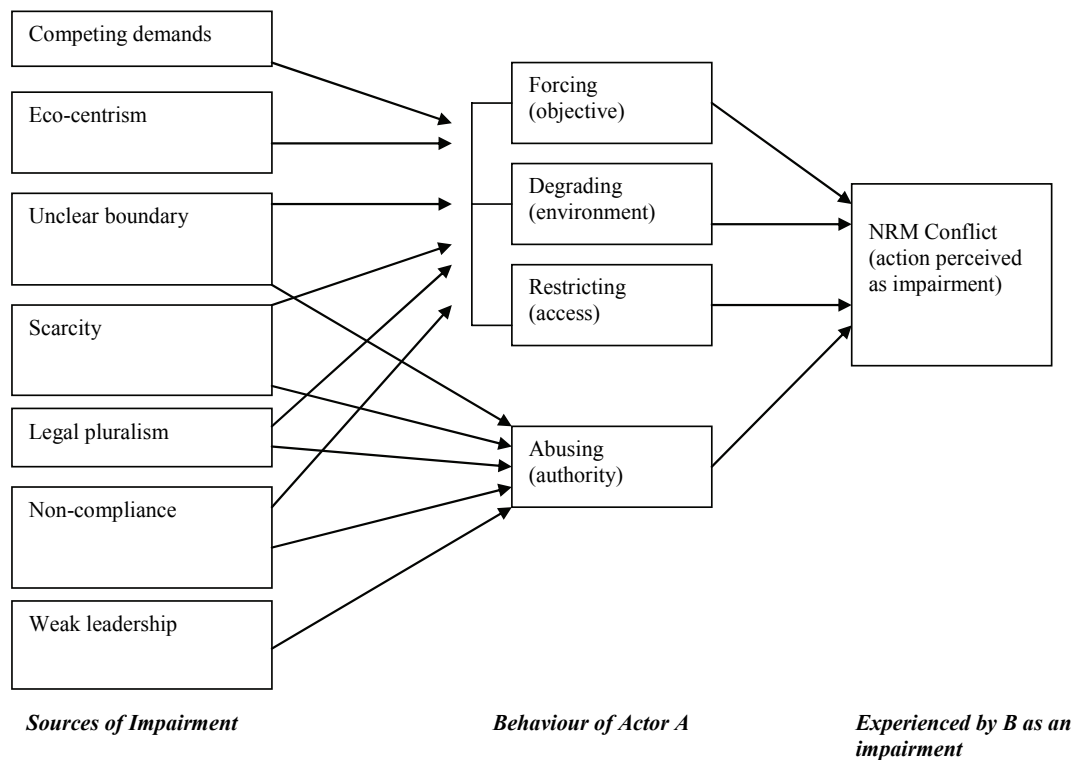
| Sources of Impairment | Behaviour of Actor A | Experienced by B as an impairment |

Figure 4.2 Proposed conflict impairment framework

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5

Manifestation of conflict escalation in natural resource management

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Abstract

Conflict escalation is one of the important aspects to be understood for constructive conflict management. It has been widely discussed in many fields of social study, in particular as it relates inter-individual conflicts. However, this is not the case for natural resource management (NRM). This paper addresses two major questions: 1) what are the stages of conflict manifestation in NRM? and 2) is it possible to identify escalation patterns of NRM conflicts? The analysis is based on a review of 118 conflict cases and qualitative content analysis. To identify escalation patterns a Markov Chain approach is used. Eight escalation stages are identified. Furthermore, although it is possible to identify escalation patterns of NRM conflicts, there is no single "generic" pattern that fits all NRM cases. Escalation in NRM is more complex compared to inter-individual conflicts. It is argued that this complexity might be due to the fact that most NRM conflicts are about multi-actors conflicts, involving wide range of issues and management strategies. Further investigation on escalation is necessary by narrowing the scope and focus of analysis in order to increase our knowledge on the subject. In turn this knowledge will contribute to achieving constructive conflict management in NRM.

Keywords: conflict, NRM, escalation stages, escalation patterns, conflict management

5.1 Introduction

According to Ayling and Kelly (1990) conflict over natural resource management (NRM) such as land, water and forests is ubiquitous. Many of those conflicts also involve violence (e.g., Alston et al, 2000; Peluso and Watt, 2001). Due to these reasons studies on conflict management expand rapidly particularly during the past two decades (e.g., Buckles, 1999; Hellstrom, 2001; Daniels and Walker, 2001). Furthermore, it has been argued that the goal of conflict management is to attain positive outcomes and avoid destructive escalation (Deutsch, 1973; Kriesberg, 1998). To achieve this it has been suggested that two major aspects must be carefully examined: issues involved in conflict and conflict escalation.

To examine issues involved in conflict is to seek explanation on why conflict arises in the first place. Myriad studies on this have been carried out and knowledge has accumulated. For instance, it is commonly argued that conflict emerges if stakeholders have differences or incompatibilities in interests, values, power, perception and goals (Walker and Daniels, 1997; FAO, 2000; Castro and Nielson, 2001; Castro and Nielson, 2003). According to Glasl (1997; 1999) differences are the basis of every conflict but conflict only occurs if an actor feels "impairment" from the behaviour of another actor due to these differences.

The second aspect focuses on how a particular conflict evolves over time. It is commonly assumed that conflict will intensify if not addressed appropriately and timely (Wall and Callister, 1995). Intense conflicts do not materialize out of thin air; they gradually become more intense. And because many people tend to ignore low intensity conflict, conflict management is usually devised only when conflict reaches high intensity. As a consequence, to achieve positive outcomes at this stage is difficult and a lot of effort is required. Glasl (1999) suggests that conflict management strategies should be based on conflict intensity/escalation (Figure 5.1)[1]. Understanding escalation helps people anticipate and manage conflict constructively. His model indicates requirements and possibilities with regards to external or internal conflict capabilities.

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[1] Glasl depicts conflict escalation in a downward movement because according to him escalation goes "deeper and deeper," not higher and higher. It progressively activates deeper and more subconscious levels; both in people and in groups, until these people or groups completely lose their self-control.
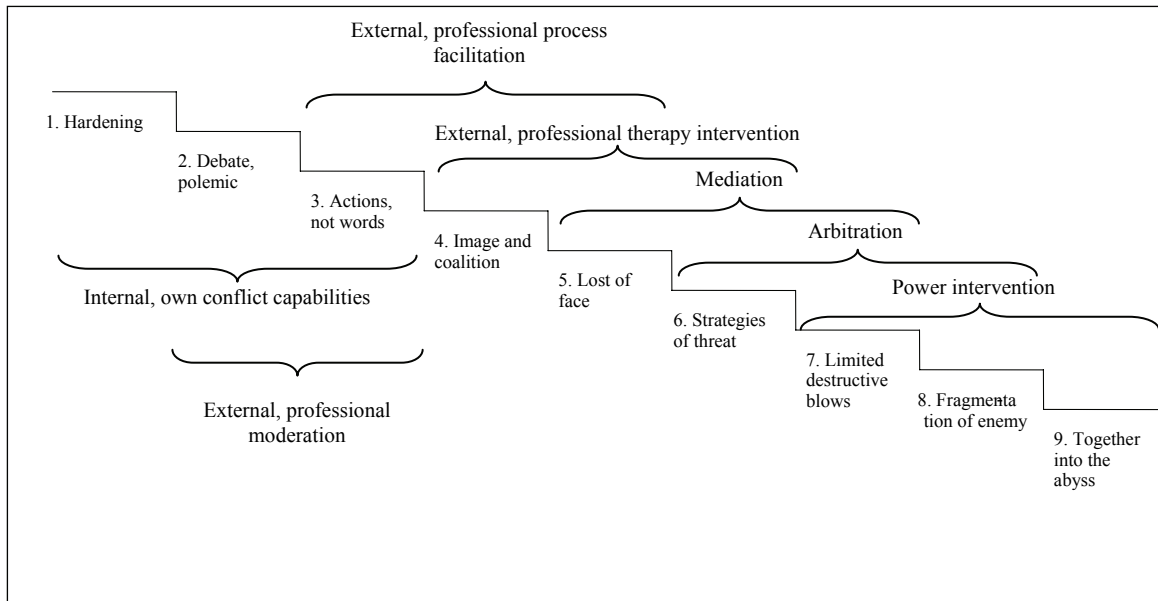
Figure 5.1 Glasl's escalation model and different forms of conflict capabilities

While conflict escalation has been well-studied in social science, it seems to be a neglected area of attention in NRM. In connection with NRM, several things are still unclear and thus further research is needed. For instance, what are the stages of conflict manifestation in NRM? How do those stages develop during the course of conflict? And, in what respect do escalation in NRM differ from inter-individual conflict as described by Glasl? In this writing we try to give a first attempt to address these questions. Unlike case study that focuses on applying theories to a particular context, our approach seeks general understanding from large number of cases. This approach is known as "moving from the specific to the general" with a major intention to provide enlightenment and contribute to theories (see, e.g., Druckman, 2005). It must be seen as a scientific endeavour rather than providing detailed technical solutions to a particular conflict/problem situation. With many experiences accumulated from different empirical studies, we consider that reconceptualization of escalation in NRM is not only plausible but also necessary.

5.2 Definition and conceptualization of conflict escalation

Escalation theory is constructed based on inter-individuals conflicts within organizational settings such as schools, factories and government organizations. Escalation can be thought of as a process of increased intensity or worsening of the conflict (Wall and Callister, 1995). As argued by Kriesberg (1998) it refers to increases in the severity of coercive inducements used and increases in the number of

participants within a conflict. Similarly, Jehn (1997) states that conflicts are perceived as more serious when they involve larger numbers of people, more events, or greater influence over future interactions.

To understand the escalation, conflict can be best viewed as a series of dynamic processes that occur within a certain period of time or as a sequence of conflict stages. Pondy (1967) distinguishes five major stages of escalation: 1) latent conflict; 2) perceived conflict; 3) felt conflict; 4) manifest conflict; and 5) conflict aftermath. Unfortunately, Pondy does not elaborate further the "manifest conflict" stage. In subsequent research scholars suggest that it consists of several specific stages that could range from light argument to intense conflict (e.g., fight, war).

Pruitt and Rubin (1986) link the tactical and strategic motivation of conflict parties with conflict intensities in the different conflict stages. They describe escalation as a process in which: 1) tactics go from light to heavy; 2) issues proliferate; 3) the parties concerned become increasingly absorbed in the struggle; and 4) goals change from self-advancement to subverting the adversary. Conflict escalates as engagement becomes difficult and actors gradually lose their flexibility towards their opponents. Stakeholders in an escalated conflict situation continuously exercise their power in relation to their adversaries. Those with ample power are most likely to be able to control resources in their favor and therefore may have little incentive to make concessions. Pruitt and Rubin's escalation model holds true in all three different conflict types: "the aggressor-defender model,"[2] "the conflict spiral model,"[3] and "the structural change model."[4]

In line with Pruitt and Rubin's arguments, Glasl (1997) provides a nine-stage model of escalation (Table 5.1). This model gives a detailed description of the levels of escalation. Not only that, it also describes thresholds and forms of escalation manifestation (i.e., see column "behavioral norm") for each escalation stage.

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[2] In the "aggressor-defender model" the aggressor is a party who sees an opportunity to change things in the direction of his or her interests and the defender is a party who attempts to resist this change. The aggressor would use mild contentious tactics at the beginning and move to heavier tactics until the goal is achieved. On the other hand, the defender merely reacts, escalating his or her efforts in response to the aggressor's escalation. Escalation continues until the aggressor either wins or gives up trying.

[3] In the "conflict spiral model" escalation is seen as a result of a vicious circle of action and reaction. One party's contentious tactics stimulate a contentious response from the other party, which contributes to continuous behavior from the first party, completing the circle and starting its next iteration.

[4] The "structural change model" stresses that conflict, and the tactics used to pursue it, generate residues in the form of changes in the parties and the communities to which the parties belong. These residues then in turn stimulate further contentious behavior, at an equal or still more escalated level, and diminish efforts at conflict resolutions.

Table 5.1 A stage model of conflict escalation (Glasl, 1997)

Stage	Conflict issues	Behavioral norms	In-group/out-group cognition and attitudes	Threshold to next level
1. "Hardening"	Objective issues Hardening standpoints	Straight argumentation	Awareness of mutual dependence Nascent role expectations Nascent in-/out-group formation, "skins" form around groups Suspicions about hidden motives	Tactical tricks used in the argumentation
2. "Debates and polemics"	Objective issues and relative position, superiority Ability to influence	Verbal confrontations Tactical feints in argumentation Debates	Affinity inwards Fixation at standpoints Ambivalence cooperation/ competition Suspiciousness Counterpart has "typical behavior"	Action without consultation
3. "Actions, not words"	Objective issues and self-image Freedom of action Prove one's own mastery Blocking the counterpart	Action without consultation Accomplished facts Symbolic behavior (jargon) Decreased verbal communication – increased non-verbal communication Extended social arena	Blocked empathy "Counterpart not capable of development" In-group conformity pressure	"Deniable punishment behavior" Covert attacks directly aimed at identity of counterpart
4. "Images and coalitions"	Counterpart is the problem Win or lose Save reputation	"Deniable punishment behavior" Exploitation of gaps in norms Formation of coalitions Attacks on core identity	Dual cognition (black/white) Coherent enemy image Attribution of collective characteristics to counterpart Self-image as only reacting to counterpart	Loss of face
5. "Loss of face"	Fundamental values Expose counterpart Rehabilitate dignity	Attacks on the public face of the counterpart Restore prestige	Enemy "unmasked": perceived as morally corrupt Guilt symbiosis in-group	Ultimatum Strategic threats
6. "Strategies of threats"	Control of counterpart	Presentation of ultimata Panic-ruled actions Self-binding statements Extension of conflict	Own actions are only reactions Perceived impotence –> rage Need for control	Execution of ultimata Attacks on counterparts sanction potential
7. "Limited destructive blows"	Hurt counterpart more than one's own group Nothing to gain Survival	Attacks at sanction potential Threats + interrupted communication	Counterpart prepared to do anything Counterpart not human Power-thinking dominates Malice important motive	Attacks at core of enemy Effort to shatter enemy
8. "Fragmentation of the enemy"	Annihilate counterpart Survival	Attacks at vital functions Actions to shatter counterpart Attacks on cohesive function	Annihilation fantasies Fascination with mechanical annihilation mechanisms	Giving up self-preservation Total war
9. "Together into the abyss"	Annihilation at any cost	Total war with all means Limitless violence	Accept one's own destruction if counterpart is destroyed	–

Based on the discussion so far, it is fair to say that the conceptualization of escalation has been developed quite well in social science fields. However, the theoretical underpinning of conflict escalation in NRM stands in sharp contrast to this. Yasmi (2004) points out that much of the current research in NRM has focused primarily on underlying causes of conflicts in a descriptive manner and does not go deeper into analyzing the stages and sequence of conflict escalation. To fill this gap, we reconceptualized escalation stages and their sequence in NRM based on comparative analysis of case studies.

5.3 Methods

It is important to mention that we employ a broad definition of NRM to include all kinds of resource management such as forestry, water and fishery management, land allocation, agriculture, mining, etc. Our main assumption is that all natural resources in these fields exhibit some common characteristics. First, their management associate with multiple stakeholder groups who have different "stakes" and perceptions regarding resource use and conservation (e.g., FAO, 2000; Buckles, 1999; Hellstrom, 2001; Yasmi, 2003). Second, most of these resources are categorized as "common pool resources" with complex institutional arrangements. Third, from an economic perspective they are considered low in terms of excludability and partial in terms of rivalry (see, e.g., Ostrom, 1990; 1999; Adams et al, 2003). Fourth, they have similar forms of values attached to them including material and cultural values. Finally, they embrace some common problems and dilemmas such as free-riders, contested legitimacy of governing actors, unavoidable conflict, etc.

We used those assumptions to select case studies from online databases. We followed the advice of Druckman (2005) that one had to be very careful and selective to avoid "lost forever" in the vast world of cyber space. We prioritized our selection to cases that have been published in peer reviewed journals from the following databases: *Elsevier/Science Direct, SpringerLink, JSTOR*, and *Taylor and Francis*. We chose them because they were available in our library and we considered that they could provide sufficient number of cases to be used in the analysis.

We used keywords that range from general to specific ones. General keywords include "NRM conflict", "conflict NRM", "resource conflict", "conflict resource", "conflict escalation", and "conflict intensity". Because NRM conflict covers a broad range of subject such as forestry, fishery, agriculture, mining, and land use we also searched for these specific terms. As expected, the results were enormous with more than 1, 000 hits. However, we excluded many of those hits because they were conceptual papers, short communications (e.g., book reviews, research notes,

commentary) or case studies that were not relevant for NRM. After careful screening, only 174 cases could be considered (empirical) studies. Out of these we had access to about 80 because our library's subscription did not cover the whole journals in those databases. We increased the number of cases using a snowball approach by looking at cited references at the end of each selected case (Druckman, 2005). Based on this we could add conflict studies done by organizations such as FAO, the European Forest Institute (EFI), the Center for International forestry Research (CIFOR), and the World Bank; many of them were published in books and some were even accessible through Internet. In the end, our list included 118 cases, which we considered sufficient enough to be analyzed. Because the additional cases were taken from these organizations, the final list consisted of 62 forest related conflicts (slightly more than 50% of the entire cases). Therefore the analysis might be somehow bias toward forestry.

The next step involved a qualitative content analysis of each case study to identify the stages of escalation. By stages we referred to the manifestation expressions of a conflict such as debate, protest, court, etc. Initially we used the nine stages as proposed by Glasl as our starting point (Glals, 1999). As we proceeded we adjusted these stages to reflect recurrent patterns that we discovered. Through an iterative process we could isolate eight categories of escalation stages, which will be elaborated in the next section. Subsequently, we assigned a numerical code for each of these stages. We then arranged these stages sequentially to reflect escalation development. A major idea behind this was to understand how conflict escalates over time. A database was developed to store all the data. We used Markov Chain approach to identify significant patterns of escalation.

5.4 Results

5.4.1 Escalation forms in NRM

Beyond the different rhetoric used by the authors of the individual case studies, the manifestation of NRM conflicts ranges widely from light disagreement to open war. We identified eight categories of escalation stages: 1) feeling anxiety; 2) debate and critiques; 3) lobby and persuasion; 4) protest and campaigning; 5) access restriction; 6) court case; 7) intimidation and physical exchange; 8) nationalization and internationalization. Within each of these categories we identified manifestation dimensions, which are comparable to "behavioral norms" in Glasl's model but more specific. We assumed that manifestation dimensions within each category had more or less the similar escalation level; thus they were grouped into the same escalation stage.

Table 5.2 Summary of forms of escalation of NRM conflicts (based on comparative analysis of 118 case studies)

Stage	Manifestation dimension
1. Feeling anxiety	Feelings of worry, complaints, rumours, unhappiness, anger, grievance, discontent, disagreement over decision/issues, fear of job lost
2. Debate and critique	Open debate, intense debate, verbal clash, accusation, quarrel, critiques to government policies
3. Lobby and persuasion	Lobbying government, lobbying for compensation, persuading government to acknowledge local rights, lobbying politicians
4. Protest and campaigning	Protest by local people, protest against logging plan, demonstration, mass protest, street rally, convoy of tractors, farmer rally, public rally, logger rally, truck convoy, marching, strike, campaigning and protest by environmental groups, media campaign, letter-writing campaign, protest by religious leaders, protest against a particular plan
5. Access restriction	Squatter invasion, picketing of companies, peaceful take over of the park, blockading logging road, preventing from working on particular areas, imposed restriction on subsistence activities, blockading ports, removal by force, eviction, forced resettlement, displacement, relocation by force, fencing land by big land holders, invasion by landless, closing the road, occupation
6. Court	Court appeal, litigation, regional court case, federal court, lawsuit
7. Intimidation and physical exchange	Threat, death threats, intimidating, threat of boycott, confiscation, machete fight, killing, injury, shooting, ambushing, murdering, attacking, strife, fight, war, violence clashes, bandit attack, damaging district forestry office, assassination, vandalism of park officials' vehicle, burning base camp, arresting, burning opium fields, hiring gunmen, military retaliation, police arrests, putting fire on forest, destroying pipeline, detention, seizing company's equipment, mobilizing soldiers & military hardware, military action, police involvement
8. Nationalization and internationalization	Protest in national and international media (e.g., newspapers, magazine, video), National High Court, State Superior Court, national referenda, bilateral negotiation, influencing national congress, widespread international protest, appeal to International Court of Justice, fight in WTO and NAFTA

The "feeling anxiety" includes suspicion about a particular action or decision by other stakeholders. This suspicion might provide a fertile ground for conflict because it creates a perception that an action by "others" would bring negative impacts to "my own" group's interests or performance. The worries further encourage "intra-group" coordination in order to counteract the action so that the perceived negative impacts are avoided or minimized. Normally at this level, some emotional reactions are expressed, such as: anger, unhappiness, complaints, rumours, etc. However, these emotional reactions are only articulated within the "own" group with the purpose of convincing group members and creating a shared feeling that "our group" is being

threatened by "others." A common example of this escalation level can be illustrated, for instance, by the effort of environmentalist groups to reduce or stop forest logging. As a result of this effort, logging industries and their workers often feel worried or unhappy about the initiative of environmentalists. So, to counter the environmentalists, industries solicit support from their workers because workers are also afraid of and worry about job losses if logging were entirely stopped.

At the "debate and critique" level, stakeholders who feel threatened challenge the action of other stakeholders in a series of debates. During the debate several issues are confronted, such as what should be the priority in terms of management options (e.g., conservation or production), why is it a priority, and so on. Opponents are often criticized and accused for being self-centered and for not taking "my group's" priorities into account. For instance, logging companies are criticized for causing damages to local resources necessary for the livelihood of local people; governments are often accused of doing a bad job in forest management due to their lack of willingness to incorporate local communities' views in management plans. In some circumstances, the debate might get intensified to the point where verbal clashes or quarrels become inevitable.

"Lobby and persuasion" is a more structured way of conveying concerns to the opponent. The key feature is that each party has a very clear position and concern supported with argumentation. By presenting and confronting the opponent with evidence, it is expected that the opponent will accommodate the concern. To illustrate this, consider the following example. Local people, through their leaders, might lobby logging company for payment of compensation based on the many adverse environmental effects of logging operations in their village. To support their claim, in lobbying the company, local leaders would argue and describe clearly how the rivers are being polluted, their trees are being cut, and many non-timber forest products (NTFPs) are severely damaged.

"Protest and campaigning" ranges from small protests on site to big protests in the capital city. Street rallies, tractor convoys, farmer strikes, etc. are often means of protest. During the protests, actors will label their opponents as irresponsible, arrogant and non-cooperative. Opponents are continuously harassed and condemned. In some circumstances, these protests are also accompanied by certain movements or campaigns, e.g., by environmentalist groups aiming at attracting wider attention so that the issue at stake is taken seriously by the opponent. This escalation level is therefore very volatile and critical for conflict development. If there is no consensus achieved among conflicting parties, conflict will most likely develop into a destructive level.

"Access restriction" is the effort to limit the access of the opponent in such a way that one's own access is secured. This action is taken to prove that a particular stakeholder group is capable of consolidating its power. Restriction of access is

deemed necessary because if it is not undertaken the opponent will continue to destroy one's "own" resources or interests. The forms and manifestation of access restriction vary in terms of scale and intensity. It can be in the form of invasion by small landless farmers, eviction by force, resettlement by force, blockading logging roads, occupation of a certain area, closing the entrance gate of national park, etc.

"Court" is often used as a medium to channel a conflict issue too. Evidence shows that courts might be used right from the start of the conflict or when the conflict can no longer be solved by conflicting parties. The role of courts in environmental conflict seems to have increased during the past decades. Court cases, court appeals, lawsuit are becoming important phenomena in NRM conflicts. In terms of scale, the court can be a local court or even higher level court such as provincial or regional court.

As conflicts get more intensified "intimidation" is often used to destroy conflict partner before applying "physical measures." However, in some cases the physical exchanges are not necessarily preceded by intimidation. The ranges of physical exchanges also vary widely such as looting, setting fires in forests, destroying oil palm areas, arresting or jailing protesters, murdering, killing local leaders, military action, open fights between hamlets, tribal war, and so forth.

Environmental conflict might reach a "national or international" level. For instance, a local mining conflict might end up in a bilateral negotiation among two countries because the mining company is owned by foreign multinational companies. Environmental protests might be known throughout the world very quickly due to media exposure. International courts, for example, could be used to calm a problem regarding international river disputes among countries sharing the same river flow, etc.

Now, as we have classified the escalation into eight stages as described above the next question that we wanted to investigate was how a conflict developed from one stage to another. In another words, we wanted to know if patterns of escalation can be identified. In the following section we shall discuss this at length.

5.4.2 Escalation patterns of NRM conflicts
For each case study, we observed the development of conflict based on the above stages. We coded each case numerically as we encountered these stages. We assigned 1 for "anxiety feeling", 2 for "debate and critique", ..., and 8 for "national or internationalization". So, if a case study is coded "1457", it should read "anxiety feeling" → "protest and campaigning" → "access restriction" → "intimidation and physical exchange".

To investigate which patterns of escalation are significant we employed a one-step Markov Chain approach. A major assumption in this particular approach is as follows: the probability of next stage of conflict (S_n) given the history of conflict's

stage up to now (S_1, S_2... S_c) is <u>only</u> influenced by the immediate current stage (S_c). Given that there are eight possible stages in the dataset, we have to find the conditional probability of the next stage given the previous immediate stage as shown by the following formula:

$$P(S_n = t \mid S_c = r) \text{ for all } r, t = 1, 2, \ldots, 8 \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Where S_n is the next stage and S_c is the current stage.

Based on the above assumption, for our dataset the probabilities for all pairs of (r, t) is shown in Table 5.3. This table can be read as follows. For example, for r = 1 ("feeling anxiety") the probability that the next stage is 2 ("debate and critique"), given that the current stage is 1 ("anxiety feeling"), is 0.22 (i.e., about 1/5). On the other, hand if the current stage is 2 ("debate and critique") then the probability that the next stage is 1 ("feeling anxiety") is 0.1 (highlighted). From the table we can also observe, for instance, the probability of r = 6 ("court") to develop to "access restriction" or "intimidation" is 0.15 and 0.25 respectively. While "debate and critique" has the probability to develop to all other stages, "nationalization/internationalization" has no probability to advance to any other stage at all (all probabilities for other stages are 0).

To investigate which stage transition is not significant (unlikely to occur), we use 95% confidence interval for each probability by generating 1, 000 bootstrap samples of the NRM-conflicts data. And the 95% confidence interval bounds are generated by the 2.5th and 97.5th percentiles of the bootstrapped probability. The lower bound for each probability is given between the parentheses in Table 5.3. All probabilities with 0 lower bounds are not significant; hence, the stage transition represents by that probability does not likely to occur. In another word, for stage transitions to be significant each pair of transition within it has to be significant. For example because state transition from 1 ("feeling anxiety") to 5 ("access restriction") is not likely to occur then the following escalation pattern is not significant: 1 → 5 → 8 or ("feeling anxiety" → "access restriction" → "nationalization"). It is also clear that transition from any stage to "nationalization and internationalization" is not significant (all lower bounds are 0).

Table 5.3 The probabilities of each stage of conflict escalation to transform to the next stages

r\t	1	2	3	4	5	6	7	8
1	0 (0)	**0.22 (0.07)**	0.12 (0)	0.21 (0.07)	0.14 (0)	0.19 (0)	0.12 (0)	0 (0)
2	**0.1 (0)**	0.12 (0.03)	0.12 (0)	0.13 (0.04)	0.15 (0.05)	0.13 (0.04)	0.15 (0.04)	0.09 (0)
3	0 (0)	0 (0)	0.1 (0)	0.37 (0.1)	0.31 (0)	0.22 (0)	0 (0)	0 (0)
4	0	0	0	0.19 (0.06)	0.2 (0.06)	0.24 (0.08)	0.26 (0.08)	0.1 (0)
5	0 (0)	0 (0)	(0)	0.14 (0)	0.16 (0.05)	0.24 (0)	0.33 (0.09)	0.15 (0)
6	0 (0)	0 (0)	0 (0)	0.25 (0)	0.15 (0)	0 (0)	0.25 (0)	0.34 (0)
7	0 (0)	0 (0)	0 (0)	0.21 (0)	0 (0)	0.36 (0)	0.04 (0)	0.36 (0)
8	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (0)

[Note: 1 = feeling anxiety; 2 = debate and critique; 3 = lobby and persuasion; 4 = protest and campaigning; 5 = access restriction; 6 = court; 7 = intimidation; 8 = national and internationalization]

Applying the lower bound rules, we find twenty six significant escalation patterns in our dataset. However, many of these patterns exhibit short chains (two or three transitions), for instance, "feeling anxiety" → "debate and critique"; "debate and critique" → "protest and campaigning", etc. Only eight patterns have more than three sequences, as follows:

feeling anxiety → debate and critique → protest and campaigning → court
feeling anxiety → debate and critique → court
debate and critique → protest and campaigning → court
debate and critique → protest and campaigning → intimidation
debate and critique → access restriction → intimidation
debate and critique → protest and campaigning → access restriction → intimidation
lobby and persuasion → protest and campaigning → court
lobby and persuasion → protest and campaigning → intimidation

Figure 5.2 Significant patterns of conflict escalation in NRM

Given that our dataset consist of around 50% forest related conflict cases, we also investigate the probabilities of all possible escalation patterns in forestry using the same procedures as described above. The results reveal five significant patterns but only three of them have more than three sequences of escalation.

debate and critique → protest and campaigning → access restriction
debate and critique → protest and campaigning → access restriction → intimidation
debate and critique → protest and campaigning → court

Figure 5.3 Significant patterns of conflict escalation in forestry

5.5 Discussion and conclusions

From the results we can conclude several important lessons. First, escalation patterns in NRM are more complex compared to inter-individual conflicts as shown by many significant patterns of escalation. This complexity might be explained by three possible factors. First, in contrast to social conflicts which have been widely described as inter-individual conflicts (e.g., Pondy, 1967; Pruit and Rubbin, 1986; Glasl, 1999), NRM conflicts are almost always about multiple-actor conflicts. With multiple actors engaging at different stages of conflict and various issues at stake, it is logical that NRM conflicts do not follow a single path of escalation.

Second, the empowerment strategies and the availability of resources to address conflicts seem to play a particular role in NRM conflicts. For instance, in most tropical countries, particularly in remote NRM settings such as at forest frontiers, conflicts are often channelled through informal negotiation involving traditional leaders or traditional mechanisms. On the other hand, in a more developed society other mechanisms like courts, political parties, parliament, media, etc. might be used throughout conflict episodes. Therefore the context-dependent "culture of conflict" might explain as well the different escalation patterns in NRM.

The third possible explanation could be associated with the underlying causes of the conflict. In many social studies, e.g., Pondy (1967), Glasl (1999), Pruit and Rubbin, (1986), conflicts are often limited to some common issues such as working conditions, school mismanagement and demand for salary increases. In NRM, the underlying causes not only vary enormously, but lead to different ways of engagement of the stakeholders involved (Buckles, 1999, FAO, 2000). Although conflict is a feature of many resource management regimes, it is often assumed to reflect differences in material interests between stakeholders. In such circumstances, conflict might be managed by trading off different management objectives or by attempting to reconcile multiple interests in resource management (Adams et al, 2003). However, the origins of NRM conflict go beyond material incompatibilities. They arise at a deeper cognitive level; conflicts can be about values and belief or romantic concerns over resources. Stakeholders draw on their current knowledge and understanding to cognitively frame a specific common pool resource management problem. Thus differences in knowledge, understanding, perceptions and priorities

are often obscure in conventional policy dialogue and may provide a deeper explanation of conflict. In conclusion, with many different causes, arbitrary boundaries of issues and stakeholders, the dynamics socio-political context it is expected that NRM conflicts develop through different paths of escalation.

Another important lesson is that forestry conflicts seem to have less number of significant escalation patterns compared to NRM; this suggests that the more specific the analysis the higher the possibility for having similar patterns. Escalation in forestry tends to start from "debate and critique" while in NRM it also starts from other stages, i.e., "feeling anxiety" and "lobby and persuasion" (see Figure 5.2 and 7.3). We obtain one identical pattern that applies to both NRM and forestry, i.e., "debate and critique" → "protest and campaigning" → "court". All other patterns are different. With these observations we can conclude that although there is one similarity between NRM and forestry's escalation to a large extent they are different.

Furthermore, many escalation patterns only exhibit short transitions for instance "feeling anxiety" → "debate and critique"; "debate and critique" → "protest and campaigning". This phenomenon allow us to presume that in NRM field, particularly those that we used in this analysis, historical development of conflict has not been studied that much in contrast to inter-individual conflicts (e.g., Pondy, 1967; Pruitt and Rubin, 1986; Glasl, 1997). Or this condition might be explained by the fact that in some cultures conflict is still considered negative and thus avoidance might be over-emphasized. In such situations, conflict escalation is normally difficult to observe as conflicts for the most part stay latent and do not escalate.

Another interesting finding from this analysis is that transition from all stages to "nationalization/internationalization" is not significant. This perhaps has to do with the nature of the cases included in the analysis. As in almost all case study approaches in NRM, research attention is paid only to a particular situational context like forest management unit, park management unit, co-management area, customary forest area, community land, etc. Hence, escalations would only be noticed within these boundaries. Nevertheless, to say that "nationalization/internationalization" of conflict is not important is "unwise" because many NRM conflicts do have global dimensions such as the international river conflicts, timber trade conflict, multi-national mining/logging company conflicts, environmental pollution, global warming, etc. Perhaps, these kinds of conflicts are not well represented in our sample.

For further attempts to reconceptualize escalation in NRM it will be useful to narrow down the field and focus in such a way that highly similar cases are selected for the analysis. Instead of applying the general assumption of the common characteristics of NRM as we do, we suggest that certain field with particular conflict characteristics be investigated in depth. For instance, as we isolate our dataset only to forestry conflicts we generate only five significant patterns of escalation compared to

the whole NRM dataset that had 26. By narrowing down the analysis it is more likely that similar pattern(s) can be derived. However, sufficient number of cases must be carefully selected.

The potential value of this kind of analysis in the absence of situational context to a large extent lies in its ability to shed more light and contribute to the theories. It has the potential to transfer learning from one situation to another (Druckman, 2005). Generating a more abstract concepts of escalation based on similar cases in a particular NRM field might be essential for understanding the way that conflicts unfold in such a setting. This understanding in turn would be of importance for conflict management. For instance, proactive conflict management initiatives could be devised if we know to which escalation stage conflict would develop (Glasl, 1999). We therefore could potentially avoid destructive escalation in a timely manner.

In addition, we are also convinced that empirical research is needed to investigate further this subject and to see whether the eight escalation stages suggested in this study can be identified and whether a pattern(s) of escalation can be discovered. Empirical investigations might therefore provide an in-depth situated learning for understanding escalation. The idea of understanding conflict within its context is equally important and shared by many NRM conflict theorists (e.g., Walker and Daniels, 1997; Buckles, 1999; Castro and Nielson, 2003). Once the escalation pattern is clear requirements for internal and external capabilities can be developed as argued by Glals (1999). And thus constructive outcomes would be much easier to realize as we are more prepared to deal with escalation.

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6

Understanding conflict in the co-management of forests: the case of Bulungan Research Forest

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Abstract

The paper describes underlying causes of conflicts between local people in Bulungan Research Forest (BRF), Indonesia with coalmining and logging companies. Results show that conflict between local people and mining companies was triggered by the fact that the mining operation caused water and air pollution and soil degradation. Another cause for the conflict was the compensatory facilities (e.g. clean water, electricity, compensation fee, etc.) provided by the companies to local people that were often delayed or unsatisfactory. Local people perceived that their major problem with logging activities was the adverse impact to residual plants such as rattan, eagle wood, medical plants, etc. Not only that, logging companies did not allow local people to cut trees for their own uses such as for houses or churches. The paper concludes that there is a need for negotiation among those parties involved in conflict in such a way that negative impacts can be reduced and positive impacts can be enhanced.

Keywords: stakeholders conflict, co-management, Bulungan Research Forest, conflict management

6.1 Introduction

For as long as humans have encountered one another, there has been conflict (Pendzich 1994; Walker and Daniels 1997). Not surprisingly therefore, in natural resource management conflict is increasingly viewed as a normal occurrence, unavoidable and part of everyday social processes as it appears in almost all exchanges regardless time and temporal settings (Hellstrom 2001).

There is no single definition of conflict. According to FAO (2000a), natural resource conflicts are disagreement and disputes over access to, and control and use of, natural resources. Conflict is also defined as a process in which two or more parties attempt to frustrate the other's goal attainment. The factors underlying conflict are threefold: interdependent, differences in goals, and differences in perceptions (Wall 1985 *in* Walker and Daniels 1997). Conflict will always exist to some degree in every community, but it can often be managed and resolved (FAO 2000b).

Since the 1990s the concept of collaborative forest management or co-management has gained prominence (e.g. Fisher 1995; Buck *et al.* 2001). In co-management arrangement stakeholders plan and decide upon collective actions with regard to how natural resources are to be managed. Roles and responsibilities of each stakeholder are identified based on continued negotiation and consultation processes. Co-management can foster a sense of community empowerment as local stakeholders participate in decision-making and benefit sharing. Thus it offers substantial promise as a way of dealing with resource-based conflict. That is why co-management of natural resources has received such an increasing attention over recent times. However, it becomes also obvious that co-management can also set into motion new conflicts or allow old ones to escalate, as different interests, knowledge levels and world-views have to be integrated. Conflict is therefore a key concept in understanding and designing co-management activities (Rhee 2000, Yasmi 2002, Anau *et al.* 2002).

In Bulungan Research Forest (BRF), East Kalimantan, Indonesia various stakeholders groups (e.g. local people, coal mining, logging companies) interact with forests. Recently, local government has attempted to use co-management approach to enable stakeholders involved to co-manage forest resources. Although its implementation is still far from an "ideal" this is a very encouraging step forward. Indeed, one of the major problems is conflict among stakeholders. This paper describes those conflicts particularly in two settlements namely Loreh and Langap.

6.2 Study area

Located in Malianu District, BRF covers an area of 321,000 hectares and is part of Asia's largest remaining tract of tropical rainforest (Figure 6.1). BRF is formed by 3 major watershed systems namely, Malinau, Tubu and Bahau. The Center for International Forestry Research (CIFOR) has conducted multidisciplinary research in this area since 1995.

The people inhabiting BRF are generally known as *dayak*, a collective name used to refer to the indigenous people of Kalimantan (Sellato 2001). They are rice farmers and harvest a variety of non-timber forest products (Kaskija 2002). Anau *et al.* (2002) noticed that there were several boundary conflicts among those people. In addition, there is a large Malay population and various groups of migrants from other parts of Indonesia such as Sulawesi, Java and Timor who came to the region mainly to work with private companies (e.g. logging and coal-mining).

Figure 6.1 Location of Bulungan Research Forest and Indonesian archipelagos

During the past years Malinau witnessed a growing influx of outsiders, such as timber and coal-mining companies. This also means increasing competition for land and various products of commercial value. Two mining companies that started their venture in 1995 have significant influence in the region with a total concession 1, 030 ha. Its monthly production is around 10, 000 tones of quality coal. The largest portion (i.e. around 70%) of the coal is exported to Japan and the Philippines, domestic use is very modest. In addition to mining companies, a state owned logging enterprise called PT Inhutani II has operated since early 1991 with a total area of 48, 300 ha and annual log production up to 30,000 m^3 (PT Inhutani II 2001). There are

two relatively small and new logging companies (locally known as IPPK[1]) with size varied and ranging from 100 to 2,500 ha, emerged after autonomy policy took effect in year 2000 (Barr *et al.* 2001, Yasmi 2002).

Two settlements (i.e. Loreh and Langap) were selected for two main reasons. First, due to the short nature of the fieldwork, the study should as far as possible utilize information provided by previous studies. Secondly, the site must be accessible and should present various activities related to forest where there was conflict among stakeholders involved. Based on those criteria and through consultation with scientists at CIFOR the two settlements were selected. There are four villages in Loreh and three villages in Langap (see Table 5.1). Fieldwork and secondary data collection including literature reviews were conducted between June and August 2000.

6.3 Methods

Semi-structured interviews were conducted with 70 respondents chosen randomly in each of the village. Number of respondents in each village is proportional to its population. According to Bernard (1995), for an exploratory and in-depth work, a sample size in the range of 30 to 50 is large enough and sufficient.

Table 6.1 Number of respondents for semi-structured interviews

Settlement	Village	Population	Number of respondent
Loreh	Long Loreh	625	23
	Sengayan	232	8
	Pelancau	243	9
	Bila' Bekayu	143	5
Langap	Langap	430	16
	Long Rat	102	4
	Nunuk Tanah Kibang (NTK)	146	5
Total respondents			70

The interviews focused on the underlying causes of conflict based on respondents' perception and understanding of the situation. Respondents were asked about how they perceived the activities of logging and mining. If they said that they were unhappy about it, then they were asked what were factors that made them to feel so. They were encouraged to describe in detail what they perceived as causes of

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[1] IPPK (Ijin Pemungutan and Pemanfaatan Kayu) is an Indonesian term for a small scale logging concessions (i.e. area ranging from 100 – 2500 ha) that is currently sprouting in East Kalimantan.

tension with those companies. An interview protocol was used to guide the researcher during the interview process with some flexibilities. Researcher did all interviews with the help from a local translator because some respondents do not speak Indonesian.

For field observation, mining location was visited. River affected by mining waste was observed. Involvement in farmers' daily activities in their rice fields was another important way to absorb information, thus enabling researcher to get insights on their activities and to have some opportunities to discuss various issues with them in a rather informal way.

To analyze the data, the interview texts were condensed and coded into one or more underlying causes of conflict. A database of coding was established. The data were analyzed qualitatively through query-making from the database (Neuwman 1997). Simple calculation to get the percentage of each underlying causes was done.

It should be noted here that the interpretation made in this way is not free from subjectivity. Being largely based on interview data, what is called data in this research is nothing more than the researcher's own construction of other people's construction of what they and their conflict partners have said or done in various conflict situations. However, Hellstrom (2001) argues that there is nothing wrong with this and this is almost inevitable in most cultural research where the line between the mode of representation and substantive content is difficult to draw.

6.4 Description of conflict among stakeholders in BRF

6.4.1 Conflict between Loreh and mining and logging companies

At least there are four stakeholder groups in Loreh: Loreh's people, coal-mining companies, logging companies and CIFOR. The mining companies are PT BDMS and PT John Holland. Additionally, there are three logging companies nearby: Inhutani II, a state owned timber enterprise, and two IPPK (small-scale logging) called CV Surip Wijaya and CV Sebuku Lestari.

Several issues triggered conflict between local people and mining companies (see Figure 6.2). The figure suggests that all respondents perceived water pollution caused by mining activities as their major concern. The pollution was caused by the fact that the waste from mining was channeled to the nearby river. Because local people are still very much dependant on river (e.g. for bathing and washing) the pollution has been their major threat. The second issue in this conflict has been the compensatory facilities. Around 80% of respondent perceived that compensatory facilities such as clean water provide by the companies were far from satisfactory. Thus they often had complaint because there wasn't enough clean water provided for whole community. For instance, there were only two water tanks for the entire people in the settlement.

The companies also promised to support the villages with electricity as compensation to their operation but very often the power ran off due to the lack of fuel for power generator and even some houses were not connected to the power.
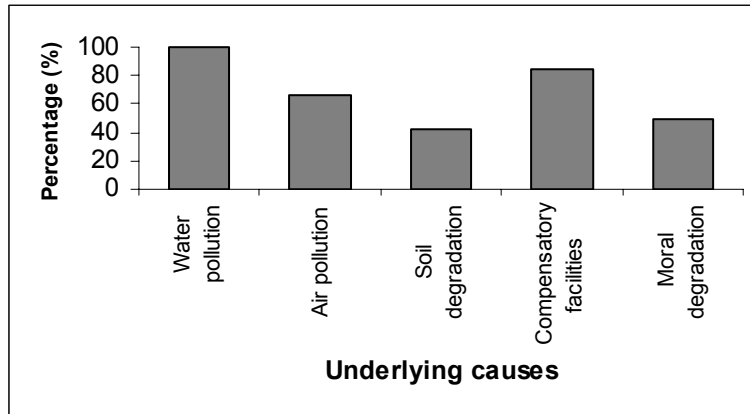

Figure 6.2 Underlying causes of conflict between local people and mining companies in Loreh

Other underlying causes were air pollution, soil degradation and moral degradation. Air pollution was originated by trucks transporting coal from the village to Malinau city. The pollution was very unpleasant mainly during dry season during which there is almost no rain. With regard to soil degradation, 40% of respondents thought that due to opening up of the area topsoil was replaced, thus become difficult to cultivate. The companies promised to return back their land affected by mining activities and to ensure that those lands would be cultivatable. In fact, the ex mining sites were no longer cultivatable. Around 50% of respondent concerned with the impact of migrants coming to their village. They felt that their culture was being threatened by outside culture. For instance, migrants seldom respect local elders. They made noise during the night in the village by singing and playing guitar. This was not acceptable to many of the local people and they thought that the companies should pay attention to this issue. Annex 1 illustrates detailed causes of this conflict and the effect felt by local people in Loreh.

This conflict became increasingly complex as it heated up rapidly. People staged several protests to the companies. In the latest protest people closed the road and forced mining to stop their activities for three days. Physical attack was planned and intimidation took place.

Another form of conflict in Loreh was between local people and logging companies. The underlying causes of this conflict are shown in Figure 6.3. Ninety percent of respondents argued that logging companies damages many important trees and several other useful things in the forests (e.g., rattan, leaves, medical plants, etc.).

Moreover, the companies prohibited people to open new farming areas and often used military approach to deal with them. Sixty percent of respondent said that they were often caught by the forest guards for cutting trees although it was only for their own uses such as for house or church. Another cause of this conflict is access to land. People felt that they could not open land for farming because logging companies claimed that all forest belong to them. Local people were often told that they had no right to open any forestland and that they need permission to do so from the companies. Annex 2 provides list of underlying causes of this conflict in more details.
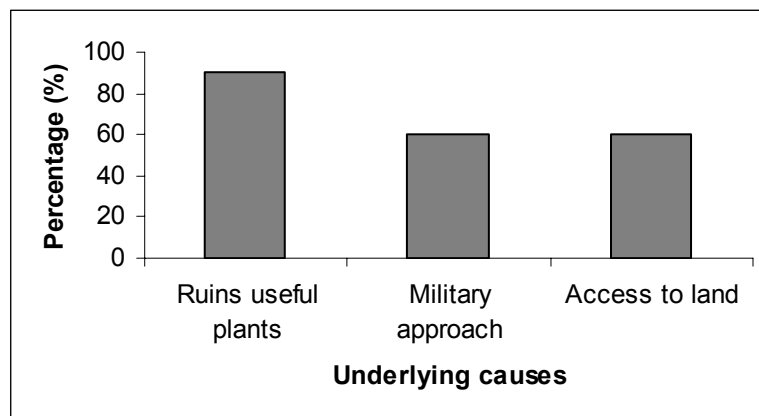
Figure 6.3   Underlying causes of conflict between local people and logging
companies in Loreh

While conflict with mining companies was very serious, this was not the case in this type of conflict. The conflict remained low in intensity although it has potentiality to get worse. Communication was still used to negotiate the position although people often felt disappointed. However, no intimidation and physical attack were reported.

6.4.2 Conflict between Langap and logging companies
In this section, conflicts between the people of Langap and two logging companies, Inhutani II and CV Hanura (small-scale), is described. The case and the issues being contended were almost comparable to that of Loreh (see Annex 2). Below are two interview excerpts that show the underlying causes of conflict between local people and logging companies.

"We have some problems with Inhutani II in Langap. Firstly, because they damage plants useful for us such as rattan, medical plants, leaves, gaharu (eagle wood), etc. Secondly, they do not acknowledge our right to the forest

as they often said that all forest belong to government and people have no right to the forest products"

"The problem we have with CV Hanura is that they often postpone their promises. For instance, they have agreed to pay Rp 30,000[2] per meter cubic of log as compensatory for community. However, they have not yet paid this to us. We suspect that if they do not pay this soon they will run away for free."

Figure 6.4 demonstrates that 80% of respondents blamed logging companies for damaging many trees and plants useful for local people. Like in the case of Loreh, the companies have causes damages to medical plants, rattan and gaharu (eagle wood). Sixty percent of respondent perceived that the way logging companies dealt with people was not so acceptable. For example, if people cut trees in the forest even only for their own uses such as for house and church they were often threatened by forest guards which is also very similar to the case of Loreh. More over, like in the case of Loreh local people felt that their access to forestland was very limited. They cannot do shifting cultivation as freely as they expected.
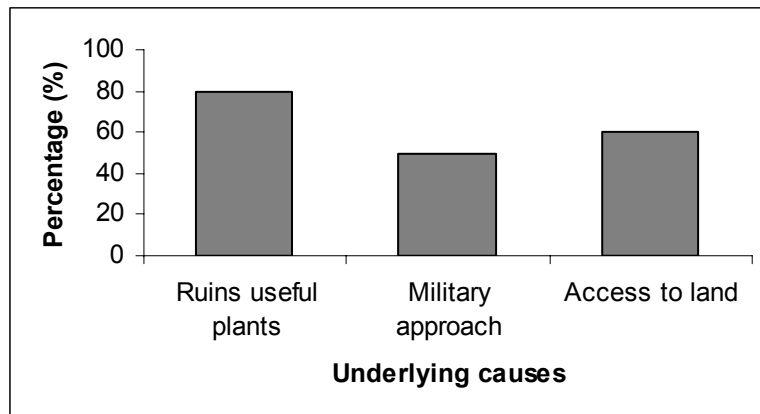
Figure 6.4 Underlying causes of conflict between local people and logging companies in Langap

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[2] US$ 1 is about Rp 9,000

6.5. Lessons learnt and the road ahead

The case study presented here shows that conflict between local people and those companies is quite common. The conflicts might be about access to forestland, damage to community resources, behavior of employees of certain companies, impact of activities to environment, etc. In both cases, it is clear that due to the interdependencies between stakeholders groups to forest resources conflict becomes a result because each group wants to attaint their goals (Wall 1985 *in* Walker and Daniels 1997).

In conflict between local people and logging companies, the problems and issues in the two settlements are very identical. Damages to community resources such as rattan, gaharu and medical plants are the major problems that induced the conflict. Interestingly, it is also clear that this kind of conflict also involves issue on access to forestland, i.e. for shifting cultivation. This is consistent with what has been described by FAO (2000a) that conflict might be about access to resources and control and use of the resources.

This study has indicated that frequently respondents referred to "problems" they encounter in relation to their interaction with other stakeholders groups as a conflict. Because they were aware of the problems they felt the necessity to "fight" against those who caused such problems. For instance, people in Loreh fought the mining companies in order to be compensated for river and air pollution, for loss of land, etc. The implication is that conflict must be acknowledged as an integral part of the resource use system. What is more critical is to understand the way people perceive the conflict. This understanding is in turn very crucial in handling the conflict.

The key task one faces in undertaking conflict resolution in BRF is to manage its occurrence. The overall goal should not be to eliminate conflict; instead, it should be to adopt procedures or mechanisms for maximizing its potential benefits while minimizing its potential drawbacks. To achieve this especially in the context of BRF, collaboration among conflicting groups through the use of negotiation is prerequisite and pivotal. Although there have been several attempts for discussion and negotiation among conflicting parties there seems to be little evidence that those conflicts could be reduced. The role of community's leaders and key person in the companies in this process has been quite central, however, the role of local government has been very minimal.

Consequently what needed in dealing with forestry conflicts, such as conflicts in BRF, is not only co-management but also wider, integrated and proactive approaches to conflict management. More importantly, there is a need to include conflict management measures within current policy domains, which are currently very directive and target oriented. This should happen not only at the community level but should also be extended to the district and regional level.

It is understandable that choosing the appropriate mechanism through which to address a particular conflict is in itself a strategic choice. No single mechanism can be applied in any conflict situation as different situation and context might require different mechanisms (FAO 2000b). However, understanding the conflict situation (e.g. the underlying causes and the intensity) could provide useful insight to the resolution mechanisms.

Although there is a common perception that getting stakeholders to work together in co-management arrangement would be a proper approach to sustainable forest management (e.g. Fisher 1995; Buck *et al*. 2001), however, it seems that the problems associated with forest management go beyond this simplification. For example, conflicts among stakeholders groups stemming from some management practices such as those causing river and air pollution, denial access to forest resources, etc. would not be resolved by simply providing alternatives to the same goods and services. Moreover, co-management in itself can set into motion new conflicts or cause old ones to escalate.

For that reason it is persuaded that we have to go beyond co-management and not get trapped in it if they intend to seek better and sustainable forest management and at the same time reduce the social conflicts. Consequently what needed in dealing with forestry conflicts are not only co-management but also wider and integrated approaches to conflict management in a proactive manner (FAO 2000b). This means that we must anticipate and expect conflict.

Although in many cases negative impacts are often more prominent in conflicts, an increasing number of authors contend that conflict should not only be viewed as dysfunctional but should be used as a catalyst for constructive changes (e.g. Castro and Nielsen 2001, Upreti 2001). In some circumstances conflict might be necessarily created to induce changes. When the manifestation of conflict causes necessary policy, economic, social and management changes, it is valuable and of importance. Castro and Nielsen (2001) further argue that conflict can be used as a starting point for co-management. However, it institution to support this must be well-prepared from the beginning of the co-management arrangement. This remains a major challenge for local government in BRF.

In line with this turn in thinking about conflicts, increasingly questions about the potentials and adequate institutional designs of active conflict utilization are coming on the political as well as the research agenda (e.g. FAO 2000a and FAO 2000b). So far, most of the studies have concentrated on the description of conflicts. This formed an important step in the understanding of natural resource management away from harmony ideals to conflict conceptualizations. The next step that needs to be made is to understand the mechanisms of actively coping with conflicts in natural resource management, in order to avoid the negative impacts and to further their positive impacts. Some initial studies have been made in this respect, but are mainly limited

to business management and organizational environments (Glasl 1999). Governance structures and natural resource management settings in this respect have not received much, if any, attention yet.

In consequence, the next step is to enlighten the potentials of conflict and to understand the institutionalization of conflict capabilities in order to achieve positive and desired social changes within co-management settings of natural resources. In contrast to the prevailing understanding of co-management approaches, which focuses on settlement or avoidance of conflicts as central importance in their conflict management, the effort in the future should focus on the active utilization of conflicts for contributing towards achieving the ultimate aim of the co-management efforts.

6.6 Conclusions

Conflict between local people and companies (i.e. logging and coal-mining) operating in a forest landscapes such as BRF might be on environmental pollution (e.g. water and air pollution), damages to community resources, access to forestland and forest resources and delay of compensatory facilities. Logging and mining companies operating in BRF have failed to pay attention to the concerns of local people and as a result conflict emerged. The way they approach local people sometimes is perceived to be too military (e.g. through the use of forest guards). The future challenge for co-management in BRF is to establish institutions for co-management arrangement that actively use conflict to induce positive social changes.

Acknowledgements

Annex 1. Underlying causes of conflict between local people and mining companies in Loreh

Underlying causes	Effect to local people
Water pollution	• Dirty water for bathing • Dirty water for washing • Dirty water for drinking • Kids can no longer swim on clean river • Many fish die
Air pollution	• Some children difficult to breath • Influenza/flu • Cough and fever • Too much dust during day time • Some elders have lung problem • Eye irritation to some people • Itchy skin • Clothes become dirty • Dust enter houses
Soil degradation	• Uncultivable land for farming • Less land for agriculture • Deep holes filled by water during wet season and form big pond
Delayed or unsatisfactory compensatory facilities (i.e. water, electricity and compensation fee)	• Not enough clean water • Not enough water tanks • Must queue to get drinking water • Not enough electric power to all houses • Not enough provision of fuel for generator • Amount of fee for compensation is decided by the company and not consulted to local people • Mining companies do not pay compensation fee as agreed • Mining companies do not help enough to build church • Mining companies do not help enough to build office for traditional leaders (locally known as *balai adat*) • Mining companies do not help enough to renovate village hall
Moral degradation	• Elders not respected • To much noise during the night • Drinking habit • Gambling in the village • Teenagers do not go to church • Parents worry on their girls, pregnant without marriage • Some migrants take local girl to town during weekend without permission from their parents

Annex 2. Underlying causes of conflict between local people and logging companies in Loreh and Langap

Underlying causes	Effect to local people
Ruin useful plants	• Damages to gaharu (eagle wood) • Damage to rattan • Damage to medical plants • Damage to young trees • Damage to honey trees • IPPK cut small diameter trees • Damages to some useful leaves useful for wrapping material • Damages to roots of tree useful for medical purposes • Some trees are wasted and left in the forest • Some IPPK destroy people's farming area
Military approach	• Forest guards are very arrogant • People are caught if cutting trees in the forest • Difficult to get tree for house construction • Difficult to get trees for church • Difficult to get trees for bridge construction • Chainsaw and other equipment for cutting trees belong to local people are confiscated • Logging companies often call police if they have problem with local people
Access to land	• People have no right to forestland • People can not open new area for shifting cultivation • People have to get permission if they want to open a new land for farming

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7

Resource use conflict in Danau Sentarum National Park: an application of impairment approach for conflict analysis

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Abstract

A rigorous conflict analysis is needed for the development of effective conflict management strategies in natural resource management. Recently, an "impairment approach" has been proposed based on conceptual considerations. It distinguishes conflict as a situation in which an actor feels "impairment" from the behavior/action of another actor. We apply this approach to analyze inter- and intra settlement conflicts in a wetland conservation area called Danau Sentarum National Park, Indonesia. The park is home to two ethnic groups (*Dayak* and *Malay*) whose livelihoods are highly dependent on fish and forest resources. We refer to inter-settlement conflicts as conflicts between ethnic groups, reflecting local residence patterns, and intra-settlement conflicts as those between hamlets within a particular group. An example of inter-settlement conflicts is the use of "poisons" by the *Dayaks* in fishing, which is perceived by the *Malays* as impairment because poisons kill their caged fish and all other fish along the watercourse. The main source of this conflict is differences in customary laws. In contrast to *Malay* customary law, the use of poisons is allowed by *Dayak* customary law. Intra-settlement conflict commonly found in *Dayak* and *Malay* settlements relates to logging and timber sale. Conflict is triggered by unclear forest boundaries between hamlets. In *Malay* settlement, various fishing hamlets also engage in conflict over the use of "destructive" fishing gears and unclear boundaries of fishing zones. This study demonstrates the application of

"impairment approach" and how it can provide a more thorough basis for analyzing resource use conflict - also on empirical grounds - compared to traditional approaches. It helps in distinguishing actors and impairments associated with conflict. In addition, it also provides a framework for defining factors/conditions that lead to impairing action. We discuss the usefulness of the framework for the development of effective conflict management strategies.

7.1 Introduction

The unprecedented destruction of tropical forests worldwide is receiving worldwide attention (Myers, 1985; Laurence, 1999; Pimm et al., 2000). With this, Indonesia has responded to this high rate of deforestation by taking important measures to conserve its remaining tropical forests. The Government of Indonesia (GoI) enacted the "Biodiversity Conservation Law" in 1990 and ratified the "United Nations Convention on Biological Diversity" in 1995. By the end of 2005, the GoI had established 50 national parks throughout the country with a total area of approximately 15 million ha (Ministry of Forestry, 2006). Whereas national park establishment is applauded, its management on the other hand is confronted with various conflicts involving different social groups that have "stakes" in those parks (Moeliono and Fisher, 2003). The Indonesian experience reflects the common problem of park management found throughout the world (Jamal and Eyre, 2003; Castro and Nielson, 2003). To address this problem, a rigorous conflict analysis is needed as a sound basis for devising effective conflict management strategies (FAO, 2000; Adams et al., 2003).

Scholars have long struggled to find an adequate method of conflict analysis, particularly by developing definitions and models. While no single school of thought exists, conflict is classically defined as differences in perceptions, goals or interests (Coser, 1956; Fisher and Ury, 1981; Pruitt and Rubin, 1986; Bartos and Wehr, 2002). According to this definition, differences in interests or perceptions must be appropriately addressed to achieve effective conflict management. This classical view influences many conflict studies including those in natural resource management (NRM). However, increasingly scholars argue that this classical view is ambiguous as it fails to distinguish between conflict and its antecedent conditions (Fink, 1968; Dadrian, 1971). Defining conflict as broadly as "differences" denies the existence of non-conflict situations because differences are inevitable and inherent in

every social interaction. Differences in perceptions or interests commonly exist without necessarily representing conflict situations.

More recently, the "impairment approach" has been introduced in the analysis of NRM conflicts (Yasmi and Schanz, in prep.; Marfo, 2006). It distinguishes conflict as a situation in which an actor feels "impairment" from the behavior of another actor because they have different perceptions, emotions and interests (Glasl, 1997, 1999). According to this approach, conflict consists of three distinctive features. Firstly, the core of the conflict is always attributed to two actor-settings: one actor (A) acts to impair another (B), with "actors" possibly also representing several individuals or organizations, i.e. the "opponents" and the "proponents" (Marfo, 2006). Secondly, the experience of an actor's behavior as "impairment" becomes the only defining element for conflict, thereby providing a single criterion to distinguish conflict from non-conflict situations. Thirdly, factors or conditions that induce such behavior such as the presence of "differences" should not be confused with the actual conflict situation; they are the "sources of impairment" that trigger or induce impairing behavior.

With regard to NRM conflict, Yasmi and Schanz (in prep) inductively derive "impairment" based on an extensive review of NRM literature. They argue that "impairment" plays a pivotal role in NRM conflict and the "sources of impairment" dictates how a particular impairment manifests itself. Whilst the "impairment approach" is a powerful explanatory tool for analyzing the course of conflicts in hindsight, the question remains as to whether "impairment" and its sources can also be analyzed or investigated empirically in an actual NRM setting; empirical investigation is still lacking. The main thrust of this study is to investigate "impairment" empirically through a case study in Danau Sentarum National Park (DSNP), West Kalimantan, Indonesia. We focus on two types of resource conflict (i.e. forestry and fisheries) that involve two main ethnic groups (*Dayak* and *Malay*). We investigate conflicts that occur between the two groups as well as the internal conflicts within a particular group. Hereafter, we refer to *inter-settlement* conflicts as conflicts between ethnic groups (between the *Dayaks* and *Malays*) and *intra-settlement* conflicts as those between members of a particular ethnic group. Based on this study, we reflect upon the usefulness of the "impairment approach" for NRM conflict analysis and its comparative advantages for the development of sound conflict management strategies.

7.2 Methodology

The empirical identification of impairments and their sources is primarily based on the perceptions of stakeholders who are directly involved in conflict (Bernard, 2002).

People's perceptions are primarily called "insider perspectives". In addition, Bernard also argues that "outsider perspectives" such as from those people who are familiar with or have long-time working experience in the area can also be useful to complement insider perspectives. According to Yin (1994), a case study is a suitable research strategy to obtain such perspectives. Its aim is to understand the meaning behind the actions and knowledge of the stakeholders (Kyburz-Graber, 2004). We use an exploratory case study method as we intend to go beyond merely description of a case; we require a hermeneutic process (continued interpretation and reinterpretation of social phenomena).

The selection of DNSP is primarily anchored in three major criteria. Firstly, from the ecological perspective, the park is one of the most unique wetlands in Asia and is composed of various types of forest and aquatic ecosystems (Giesen and Aglionby, 2000). The park consists of several large lakes interconnected by a dense network of rivers and channels. While it is rich in biodiversity, it faces tremendous ecological pressure from illegal logging, palm oil plantation development and unsustainable fishing practices. Secondly, the continued presence of inter- and intra-settlement conflicts makes the park an ideal location for this study. It may offer an opportunity for in-depth exploration and learning regarding different characteristics of settlement conflicts. Thirdly, the park holds multiple resources such as forests and fish that are continuously contested by stakeholders. Thus, we may derive general conclusions about multiple resource conflicts as in the park.

Interviews were our primary method for eliciting stakeholder perspectives (Gubrium and Holstein, 2001; Holstein and Gubrium, 2003). We conducted in-depth face-to-face interviews with 31 key informants that lasted between 45 minutes and two hours. The informants consisted of six *Dayaks*, eleven *Malay*s and fourteen outsiders (i.e. researchers, park rangers, and NGOs and district forest service personnel). The number of informants represent the saturation point of the data; the point at which interviewing more informants would not provide additional substantive information (Guest et al., 2004) - as well as being proportional to the size of each stakeholder group. Furthermore, given the cultural context and socio-political structure of the community in the study area, it proved difficult to interview female informants. Hence, the results may not adequately address gender perspective.

In addition to interviews, we carried out two focus group discussions (FGD), one in a *Dayak* and another in a *Malay* settlement. We also convened a multi-stakeholder workshop attended by representatives of all stakeholder groups. We double-checked our findings with experts who have long-time experience working in the area. Utilizing the triangulation of methods, the rigor (objectivity, reliability and validity) of the case study can be enhanced (Kyburz-Graber, 2004). We analyzed our data qualitatively through content analysis of the interview texts, which enabled us to recognize patterns in our data (Mayring, 2000).

7.3 Conflict in the socio-political context of Danau Sentarum National Park (DSNP)

7.3.1 Site description and stakeholders

DSNP covers an area of 132 000 ha and is located in the floodplain of the upper Kapuas river basin, Indonesian Borneo, near the border with Malaysia (Figure 7.1). It consists of a series of interconnected lakes (= *danau*), interspersed with swamp forest, peat swamp forest, and dry lowland forest on isolated hills in the northern and eastern part of the park area (Colfer and Wadley, 1999; Dennis et al., 2000; Anshari et al., 2001). Ninety-five percent of the area is inundated during the flood season creating a network of rivers and lakes. During the dry season (May - September) there is an average 12 m drop in water level (Adger and Luttrell, 2000). The park is home to 500 tree species, 250 fish species, 250 bird species, three crocodile species, orangutans, and proboscis monkeys (Giesen and Aglionby, 2000; Meijaard et al., 2000).

According to Harwell (1997), local communities are very dependent on resources such as fish, timber and non timber forest products (NTFPs), including rattan, honey and medicinal plants. The two major ethnic groups found in DSNP (*Dayaks* and *Malays*) have distinct livelihood strategies. The *Dayaks* (Christian) are primarily shifting cultivators and hunters whilst the *Malays* (Muslim) are fishers (Colfer, et al., 2000). The *Dayaks* live in traditional longhouses and occupy the more upland, drier areas surrounding the lakes (Wadley, 1997). Although they fish routinely for subsistence along the rivers and around the lakes, fishing is not their primary source of livelihood. On the other hand, the *Malays* reside downstream around the lakes and along the large rivers and depend almost exclusively on fishing for their livelihood (Dudley, 2000).
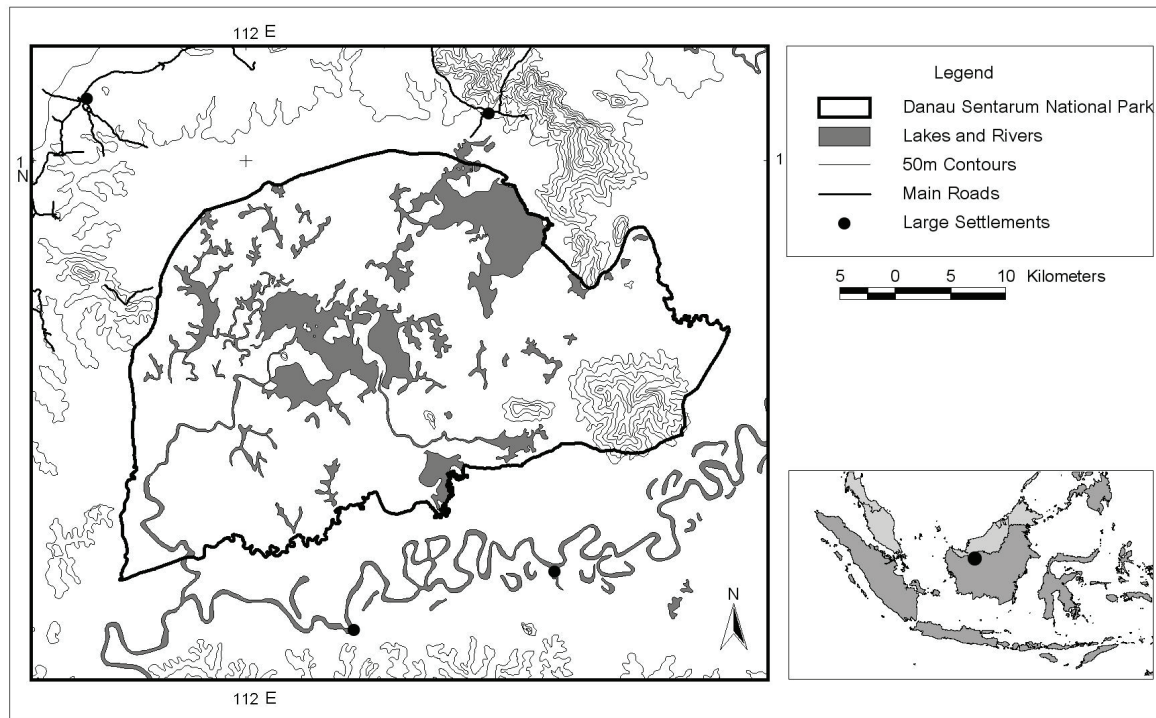
Figure 7.1 Location of Danau Sentarum National Park

The population in DSNP grew by almost 40% in the period 1985 – 1995 due to a large influx from surrounding areas who came for fishing (Aglionby, 1995). There were 39 permanent and 10 seasonal hamlets within the park area recorded in the late 1990s (Giesen and Aglionby, 2000).[1] In addition, 14 other hamlets located outside the park had utilization zones (e.g. fallows, customary forests) that overlapped with the park boundaries. Out of these, there were only 12 *Dayak* hamlets and 10 of which were outside the park. Erman and Heri (2005) reported that the population of DSNP was about 8 000 and 80% were *Malay* "fisherfolk". With the growing population and increased pressure on aquatic and forest resources, conflict among community groups has become more frequent.

7.3.2 Background and description of forestry conflict

Forestry conflicts can be best understood by looking at the historical division and utilization of forest resources. The division is primarily based on the location of the hamlet. Every hamlet has its own utilization zone, locally known as *wilayah kerja* (Dennis and Erman, 1999). The zone of a particular hamlet is usually distinguished

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[1] We define a hamlet as a group of households composed of people from the same ethnic group who share the same geographical area. We specifically refer to settlements as a group of hamlets that belong to a particular ethnic group.

112

from its neighbor by natural features such as rivers or hills.[2] The use of resources such as timber and NTFPs is regulated by customary law (*hukum adat*), which stipulates, for instance, which trees can be harvested, which locations are prohibited for harvesting, how much can be harvested, and for what purposes the trees can be used (Anshari et al., 2005). In *Malay* settlements, timber is used for house and canoe construction, walkways, simple furniture, and floating fish cages. In *Dayak* settlements, there tends to be somewhat less use of timber for fish cages and walkways; other uses remain similar.

Giesen and Aglionby (2000) stated that until the 1980s, extraction of products from forests was quite sustainable. This observation was reinforced by Dennis et al. (1998) who used time series remote sensing data (1973, 1990 and 1994) to conclude that local forest management appeared to have minimal impact on forest cover. However, in late 1999, Wadley et al. (2000) found a number of signs of illegal logging activity in the area. This finding was further confirmed by Anshari et al. (2005) who reported that, after the demise of the Soeharto regime in 1998, illegal logging increased. A common explanation for this phenomenon has been the political instability in the country following the end of the Soeharto authorization regime. During the period of weak state control, the so called "transition period" (1998-2004), many communities took advantage of the situation to make some quick cash - prompted by wealthy entrepreneurs, often from across the border. This period was the peak of illegal logging and preliminary analysis of time-series satellite imagery corroborates these findings (Dennis pers. com.).

Illegal logging in DSNP seemed to follow a common pattern. Usually, a hamlet made an agreement with a timber company to log within its utilization zone. In almost all cases, Malaysian timber companies were the major player in the activities. Those companies used local entrepreneurs as "brokers" to persuade communities to enter into logging deals. Once an agreement was reached, the company mobilized all the necessary equipment and personnel to conduct logging. In return, local communities received fees from those companies (amounts varying from $2 to $5 per cubic meter) and local infrastructure development assistance (e.g. renovation of long houses or mosques). During the expansion of illegal logging, conflict increased with most revolving around unclear boundaries of utilization zones between hamlets.

7.3.3 Background and description of fishery conflict
As in the case of forests, a fishing zone is divided according to different river and lake systems. The divisions between the *Malay* and *Dayak* zones are perhaps more obvious than the divisions among the *Malay* hamlets. The *Dayak* fishing zones normally exist in the upper part of the area (upstream), which includes rivers and

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[2] Although each hamlet has a utilization zone, people from other hamlets are normally permitted to collect timber and NTFPs provided that they ask permission to the customary leader.

some lakes. The *Malays,* who live mostly downstream along major rivers and lakes, divide fishing zones among themselves. Sometimes two hamlets share the same river or lake, in which case the boundaries may be rather vague.

Fishing practices in DSNP include the use of a variety of lift nets, funnel nets, cast nets, gill nets, traps, hooks-and-lines, etc. (Dudley, 2000). The intensity of fishing activities is highly influenced by the water level, which reaches its peak during the dry season. Each hamlet has its own customary regulation (*adat*) that controls fishing activities, such as regulation on gears (allowed and prohibited), locations for fishing, and sanctions and fines. The head of the fishers (*ketua nelayan*) in each hamlet ensures that proper practices are adhered to in the fishing area. Conflict often emerges when someone breaches the *adat*, for instance, by using prohibited gear or by entering another's fishing zone without prior permission.

7.4 Actors, impairments and the sources of impairment in inter-settlement conflicts

Inter-settlement conflicts are conflicts between ethnic groups (i.e. *Dayak* and *Malay*). Following the "impairment approach", we make a distinction between an actor (A) who impairs another and an actor (B) who feels impaired. We specify A's actions that are experienced by B as impairment. We seek B's perspectives on why such actions are felt as impairment. Furthermore, we seek explanation on factors/conditions that induce A's actions (sources of impairment). Table 7.1 summarizes the most significant inter-settlement conflicts in DSNP.

Table 7.1 Inter-settlement conflict in DSNP

Conflict case	Actor A	Impairing behavior of Actor A	Actor B	Explanation of why B perceives A's behavior as impairment	Source of impairment
1	Dayak	Using poison in fishing	Malay	Destroying/causing death to caged fish, jeopardizing fish stock	Differences in customary laws
2	Malay	Fishing in Dayak's territory	Dayak	Non respectful to one's utilization zone, jeopardizing fish stock	Decreasing fish resource

Firstly, the use of chemical poisons by *Dayaks* was the major concern among *Malays*. They perceived this practice to be very destructive because it killed all fish along the watercourse including floating caged fish in downstream settlements. A

114

respondent reported three periods when poisoning caused major problems (i.e. 1990, 1994 and 1997). Recently, the same incident took place again as mentioned by *Malay* respondents during interviews and FGD sessions. Poisoning indeed has a long history in the *Dayak* tradition, though the traditional poison, *tuba*, is far less harmful than the commercial poisons frequently used today. While the *Malays* considered poisoning very dangerous, the *Dayaks* commonly saw it as an acceptable method rooted in their tradition and customary laws. A *Dayak* respondent argued, "The use of poison is not dangerous at all for fish stocks because we only use it during a certain period of the year and not on a continuous basis. Poisoning is our tradition that we inherited from our ancestors".

Another inter-settlement conflict relates to fishing by some *Malays*, particularly those who live in the upper river basin close to *Dayak* settlements. A *Dayak* respondent said, "We often encounter the *Malays* fishing in our area without prior permission from our customary leader. They do not respect our territory and also they endanger our fish stocks. We often confiscate their fishing equipment and enforce fines according to our customary laws". While fishing in *Dayak* utilization zones was perceived as impairment by the *Dayaks*, the *Malays* argued that they had to fish far away from their settlement because of the difficulties in catching fish; the *Malays* often complained about the decreasing amount of fish present in recent times. This condition had led them to fish farther and very often to enter the *Dayaks'* utilization zones.

Figure 7.2 summarizes the perceptions of each stakeholder group including the perception of outsider groups on the aforementioned inter-settlement conflicts. There is a very large discrepancy in perceptions between the *Dayaks* and the *Malays*. For example, all *Malay* respondents said that using poisons jeopardized the fish stocks and 64% of them also believed that it destroyed their floating caged fish (Figure 6.2a). In contrast, the *Dayak* respondents did not share this view. The perceptions of outsiders was similar to that of the *Malays*, i.e. 71% considered poisoning dangerous for fish stocks and 57% argued that it damaged the *Malays'* caged fish.

Furthermore, the perceptions of stakeholders on the second conflict case, where *Malay*s entered *Dayak* territories, also varied considerably (Figure 6.2b). For instance, 83% of the *Dayaks* perceived such entry as a disrespectful act and 50% as a threat to the fish stocks in their territories. However, some *Malay* respondents considered it acceptable as they said that they had to fish there because of the lack of fish in *Malay* territories. Some *Malay* respondents acknowledged that their fishing in *Dayak* territories was indeed a disrespectful act (27%) and could jeopardize fish stocks (18%). However, they felt that they had no other choice due to decreased fish stocks and therefore continued to fish there. Outsiders perceived this conflict mainly as the result of disrespectful acts displayed by the *Malays,* and thus jeopardizing the *Dayak* fish stocks.
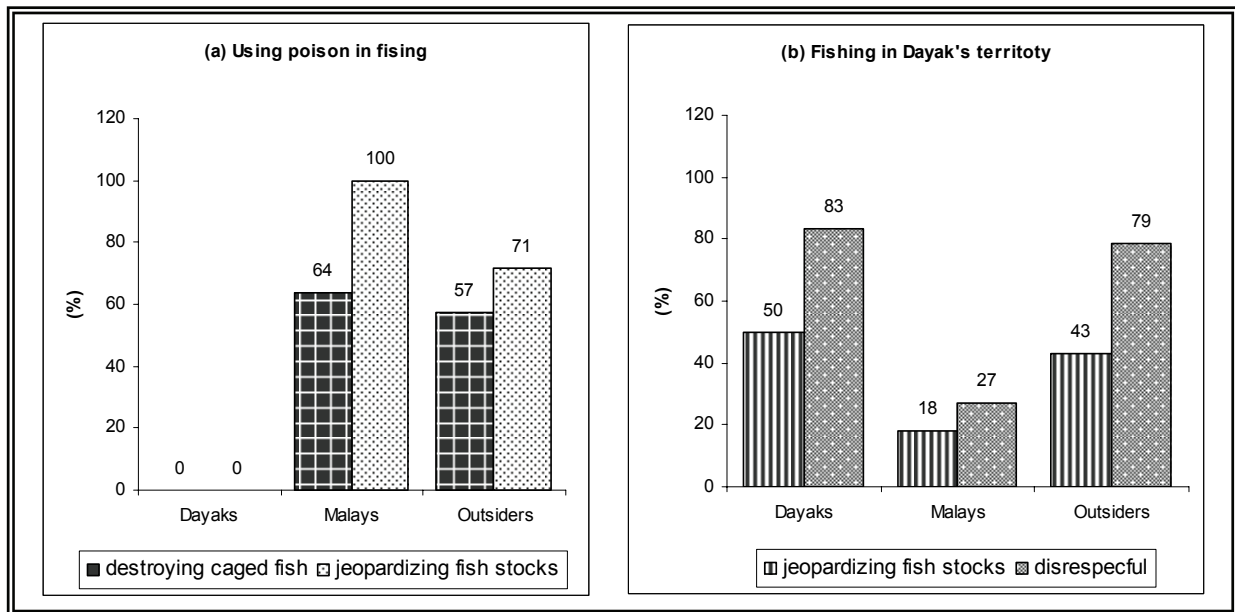
Figure 7.2 Perception of actors on inter-settlement conflicts between the *Malays* and
Dayaks

7.5 Actors, impairments and the sources of impairment in intra-settlement
conflicts

Table 7.2 summarizes four types of intra-settlement conflict. In the *Malay* settlement,
the use of destructive fishing gears, e.g. small mesh funnel net (*jermal*), gillnet
(*pukat*) and multiple hooks (*rabai*), was considered harmful for fish stocks. Thus, in
most hamlets they were forbidden as the majority of *Malays* argued that these gears
caught all sizes of fish (including small species and juveniles). Whilst most fishing
hamlets strictly prohibited such gears, as imposed through their customary laws, a
few hamlets did not have such laws. Therefore, conflict often emerged when two
hamlets shared the same river or lake but held different laws.

Table 7.2 Intra-settlement conflict in DSNP

Conflict case	Actor A	Impairing behavior of Actor A	Actor B	Explanation of why B perceives A's behavior as impairment	Source of impairment
1	Malay	Using "destructive" fishing gear	Malay	Jeopardizing fish stock	Differences in customary laws
2	Malay	Fishing in other's zone	Malay	Non respectful to one's utilization zone, jeopardizing fish stock	Unclear boundaries of fishing zone, decreasing fish stock (scarcity)
3	Malay	Logging in other's zone	Malay	Threat to conservation initiative	Unclear boundaries of forest zone
4	Dayak	Logging in other's zone	Dayak	Non respectful to one's utilization zone, threat to future access	Unclear boundaries of forest zone

Another intra-settlement conflict in the *Malay* settlement was fishing in another's zone without permission, i.e., people from a particular hamlet went fishing beyond their utilization zone. This type of incident was frequently reported, as illustrated by a respondent in Leabo:[3] "People from Laje often come to our area without permission. They fish here as if this lake and river belongs to them. We often warn them not to come again but they often ignore. In the past, we had to confiscate their fishing gear and canoes. We even burned them". The fishing habits of Laje's people were perceived as impairment because they did not respect the fishing zone of Leabo. More importantly, the Leabo people were concerned about their fish stocks if Laje's people continued to fish there. The source for such incidents was primarily due to unclear fishing boundaries.

Another stated reason was the low fish catches, which led many people to fish outside their utilization zone. Numerous respondents commented that fish stocks had decreased dramatically and often complained, for example, about the small catches they were experiencing. One respondent said, "In the past we only needed to go fishing for two or three hours and we could go home with a canoe full of fish. During the past few years, we have been fishing for the whole day without getting much". The scarcity issue was also discussed during the multi-stakeholder workshop and many attributed it to the increased population, overfishing and the use of destructive

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[3] All hamlet names used to illustrate conflict cases are pseudonyms.

fishing gears. Evidently, due to the scarcity as claimed by many fishers and the increasing number of households, the issue of fishing zone boundaries has become a more important and often the source of prolonged disputes.

The third type of conflict relates to forestry. In 2003, Pangemo and Gantuno - two *Malay* hamlets - became embroiled in an intense conflict. Gantuno, which was committed to conserving its forest, observed that the company received permission from Pangemo also cut trees in the Gantuno forest area. On the other hand, Pangemo argued that the company only operated within its own utilization zone. They established a joint team of representatives to survey the area under dispute. After weeks of debate, the boundaries were finally clarified; the result being that the timber company was found to have logged in Gantuno's forest. A fine of 20 million Rupiah ($ 2 300) was subsequently imposed on Pangemo.

A community leader from Gantuno illustrated why logging was perceived to be an impairment to the conservation initiative that he promoted: "We in Gantuno are committed to not selling our forest to any company. We do not want to follow others who auction their forests. We will conserve it for our future generation, children and grandchildren. It is our last resort and we do not want to destroy it. If we log our forest today, in the future we will have difficulties in finding timber for housing, canoes, fish cages and furniture. We felt threatened when the company of Pangemo entered our forest without permission and cut our trees. We could not accept that and we decided to stop them by force". Respondents stated that unclear forest zone boundaries were the main source of this conflict.

Figure 7.3 illustrates how stakeholders perceived the three cases of intra-settlement conflicts in the *Malay* settlement as described above. For example, the perception of "destructive" fishing gears differed significantly between proponents and opponents (Figure 6.3a). All opponents (100%) saw the use of such gears as a "threat" while proponents obviously did not share this view. Outsiders also considered the use of such gears as unacceptable on the grounds that they jeopardized fish stocks. For the second conflict case, the opponents perceived "fishing in another's zone" as impairment due to disrespectful practice (80%) and jeopardizing fish stocks (60%). Most outsiders (i.e. researchers, park rangers, and NGOs and district forest service personnel) also perceived this kind of practice as unacceptable (Figure 7.3b). Finally, in the case of forestry conflicts, all opponents perceived logging as a threat to conservation. Similar to the perceptions of opponents, most outsiders perceived logging as a threat to conservation (Figure 7.3c).

The fourth case of intra-settlement conflict was between two neighboring *Dayak* hamlets, Peleju and Malele, who had entered into agreements with various timber companies. The problem emerged when Malele accused Peleju of felling trees in the utilization zone of Malele; a claim which Peleju did not accept. Meanwhile,

community members from Malele confiscated all logging equipment and requested Peleju to cease activity immediately. Several attempts to resolve the conflict failed and logging was halted for several months. The forest boundaries could not be easily resolved even after months of negotiation. Our interviews found that the people of Peleju claimed that Malele was jealous because, unlike Peleju, it did not receive assistance from the company to renovate its longhouse.

On the other hand, Malele said that Peleju had breached the boundaries and that compensation must be paid for all trees taken from Malele's forest. For both sides, claiming forest area and maintaining their claim were important to securing future access to the forest resources. A respondent in Malele said, "Logging by the company who got the permit from Peleju entered our forest without permission. We fear that they will continue to log our forest if we do not stop them immediately. The result will be devastating as we will lose our forest for nothing and our future generation will also lose their access to the forest. For this reason, we will have to stop them".

From interviews held in Malele, it was obvious that their concerns about the logging were based on their belief that their utilization zone was not respected. If Malele were unable to stop the logging, it would imply that the area logged by Peleju would be lost forever because, in *Dayak* tradition, a claim over an area normally starts with forest clearing. Similar conflicts have occurred in many other settlements throughout DSNP. One of the respondents explained, "In the past these two settlements never fought each other. We originated from one family. Now, because the possibility to cut trees from the forests is open, we start to dispute the boundaries. Every hamlet wants to claim a bigger area to get more money from selling the trees. In the past we never thought seriously about boundaries because it was difficult to log the forests and people were afraid of being caught by the military".
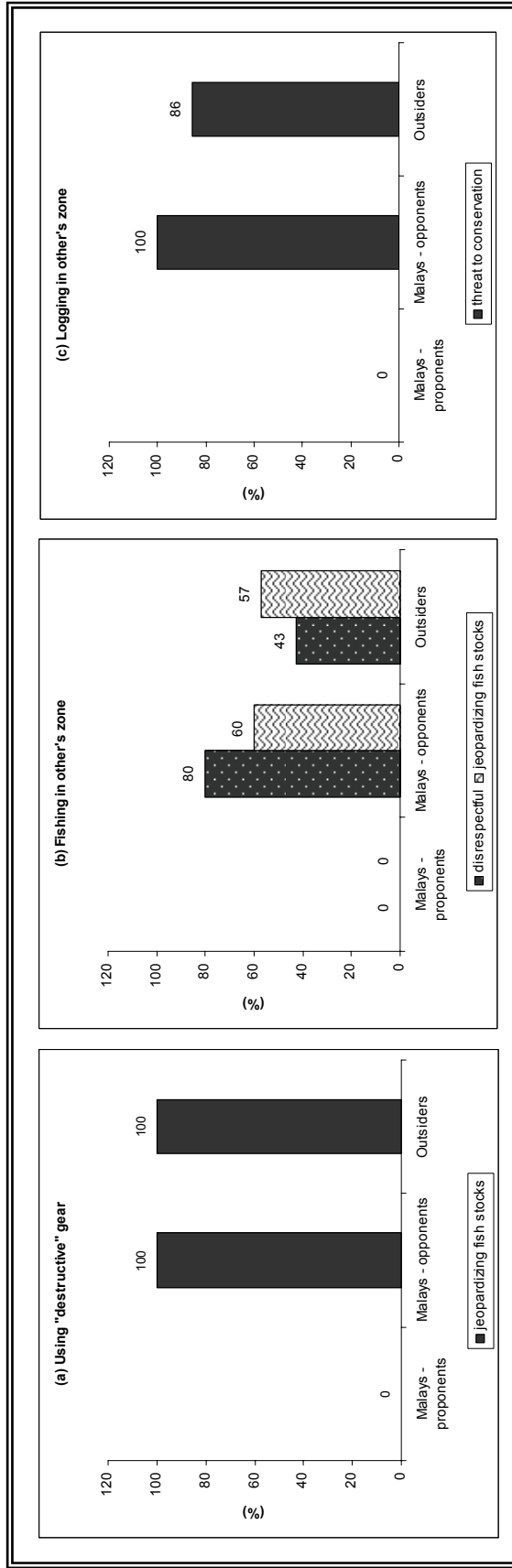
Figure 7.3 Perceptions of actors on intra-settlement conflict among the *Malays*

7.6 Discussion

The presence of inter- and intra-settlement conflicts reinforces the notion that conflict in park management is ubiquitous (Jamal and Eyre, 2003; Castro and Nielson, 2003). This study shows that inter-settlement conflicts primarily revolved around fishery issues. On the other hand, intra-settlement conflicts seem to involve wider issues. In the *Malay* settlement alone, various hamlets engaged in fishery and forestry conflicts at the same time. In the *Dayak* settlement, conflict focused on forestry issues. No fishery conflict was found in *Dayak* settlements; this is understandable given that fishing was not their main source of livelihood (Colfer et al., 2000).

At a first glance, the conflicts in DNP - particularly the inter-settlement conflicts - seem to be explainable by the differences in customary laws between the *Dayaks* and the *Malays*. This would support the traditional approaches in analyzing NRM conflicts (e.g., Coser, 1956; Fisher and Ury, 1981; Pruitt and Rubin, 1986; Bartos and Wehr, 2002). However, a more thorough analysis, reveals the strength of the "impairment approach" - also on empirical grounds - as differences in customary laws as such do not necessarily represent a conflict situation in DNSP. This is well illustrated by the case of fishing in the *Malay's* settlement where each hamlet has its own customary law. Some allow the use of *pukat* or *rabai* (also known as destructive gear), while the majority prohibits them. Empirical evidence indicates that the use of such gears jeopardizes fish stocks, as has been suggested by the majority of the *Malays*. The traditional approaches in NRM-conflict analysis would therefore immediately signal the existence of a conflict. In reality, however, as long as the use of these gears is not perceived as impairment there is no conflict at all. As illustrated by one of the respondents, "Long ago the use of *pukat* was not seen as a threat because at that time we still had enough fish. Although some used *pukat*, we could still get a lot of fish. Today things are changing. There are so many people in this area and the fish stocks are declining. The use of such gear poses a real problem". Hence, there was no conflict in the past as the use of such gears was not perceived as impairment. In other words, although actors have many differences (e.g. customary laws, fishing gear, and ethnic identities), they do not automatically engage in conflict. "Differences" like these are normal and inherent characteristics of the diversity of life and thus cannot be equated to conflict alone. The traditional conflict approaches are therefore inadequate in explaining on empirical grounds which and when "differences" really result in conflict.

The "impairment approach" helps to reveal another empirically important feature of NRM conflicts, namely their dynamic nature. Whereas "differences" remain more or less stable, the perception on impairment seems to change over time in response to

the changing political context, demographic situations and resource availability. This is well illustrated by the findings that, prior to the decentralization period, inter- and intra-settlement conflicts were not very prominent. However, when the political context changed various conflicts emerged. Transition from centralistic government to decentralization triggered forestry and fisheries conflict. Violation of forest or fishing boundaries was immediately perceived as impairment. Changes in the political context also seemed to induce outside players, i.e. foreign timber companies from Malaysia, to take advantage of the weak state control; they were a contributing factor in aggravating local resource management.

Similarly, when demographic situations change, e.g. growing regional population, communities may also came into conflict due to the increased competition for resources. Impairment was experienced in the study area when others encroached into their fishing zone or used poison in fishing. Likewise, people felt threatened when a neighboring hamlet felled trees in their forest (e.g. see the conflict case between Pangemo and Gantuno). In summary, as the population increases, impairment is experienced more often than not as a result of heightened competition over dwindling resources. Finally, resource availability also influences the way people experience impairment: the scarcity of a resource can alter their perception on impairment. During periods of ample fish, for example, "using destructive gear" was not perceived as impairment. Nevertheless, as fish stocks became scarce, serious conflict emerged.

7.7 Conclusions

Although the "impairment approach" was initially applied to the study of social conflict (Galsl, 1997, 1999), it also seems to offer significant potential for the study of NRM conflicts in general (Marfo, 2006). This study not only demonstrates that NRM conflict can be distinctly identified based on the empirical assessment of "impairments", but it also clearly indicates that the "impairment approach" offers a number of comparative advantages for the assessment of conflict situations on empirical grounds compared to the classical approaches (Coser, 1956; Fisher and Ury, 1981; Pruitt and Rubin, 1986; Bartos and Wehr, 2002),

While conflict is traditionally analyzed in terms of differences in interests, perceptions or goals, the "impairment approach" helps to distinguish conflict clearly from its antecedent conditions through three empirically distinct features: actors, impairments and sources of impairment. As shown throughout the paper, resource use conflicts involve different constellations of actors and may revolve around a number of impairments, such as using poison in fishing, logging in another's zone,

using destructive fishing gears, etc. The common sources of such impairments in DSNP are customary laws, resource scarcity, and unclear territorial boundaries.

The presence of conflicts over resource use with different kinds of impairments, actors and sources suggest the necessity to develop mechanisms for effective conflict management that can respond to such dynamics. In this regard, conflict among different groups has been acknowledged as one of the critical challenges in national park management. Whilst national park establishment is intended for biodiversity conservation, this study shows that it is confronted with continued conflict over unsustainable resource extraction. One implication that can be drawn is that establishing a national park should take into account the needs and aspirations of local communities. Any initiative for biodiversity conservation is likely to fail if local people's needs are not adequately addressed. In this context, the "impairment approach" offers another comparative advantage on empirical grounds as it allows us to proactively anticipate conflict. If one knows what people consider as impairment and the conditions that induce such impairment (source of impairment), we should then be able to timely address NRM conflict before it escalates. In other words, conflict management can be more strategic if we possess a sound understanding of impairments. Consequently, a thorough empirical assessment of impairment and its various sources can help indicate the leverage point for effective conflict management. Still, different conflict management strategies may be needed in response to different impairments and their sources.

In conclusion, the "impairment approach" holds enormous potential - on both theoretical and empirical grounds - in offering powerful explanations for NRM conflict evolution. Further empirical application of impairment approach will enable us to grasp the idea whether it will succeed or supplement the existing NRM conflict approaches

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124

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8

Analyzing conflict escalation in NRM empirically: lessons from forest land use conflict in Sumatra

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Abstract

Conflict escalation occurs in all fields of natural resource management (NRM). Even so, few studies demonstrate how conflict escalation can be measured empirically. Empirical research is needed to enhance our understanding on how a particular NRM conflict escalates from one stage to another, which can be fundamental in deciding how to mobilize resources for managing conflict. This study focuses on land allocation conflict in Sumatra, Indonesia, which involves a logging company and local community. The conflict takes place under the so called the "transition period", i.e. transition from centralistic to a more decentralized mode of governance. The main issue in the conflict is over an unclear boundary between state forest and communal forest resulting in the opposition of local community to logging activity. In this study, we intend to obtain an in-depth understanding on how the conflict escalates over time. We demonstrate various escalation stages associated with the conflict and provide an escalation pattern. In addition, we also discuss factors that promote escalation. This study provides important lessons for the development of effective conflict management strategies in NRM. We show, for example, that the role of information is pivotal for managing an escalated conflict and indicate how understanding escalation may improve our strategic ability to cope with conflict. Based on the results of this study, we argue that forest land allocation conflict such as that in Sumatra can be resolved through the promotion of stakeholder dialogues. We conclude that the role of government in promoting such a dialogue is crucial.

Keywords: Conflict escalation, Escalation stages, Escalation patterns, Natural resource management, Forest land allocation conflict, Indonesia, Sumatra

8.1 Introduction

In all fields of natural resource management (NRM), there are increasingly examples of situations where a small conflict can escalate into an intense "fight". Some conflicts even turn violent quite rapidly while others take a longer time before escalating to such a stage. In the forestry sector, for example, a small disagreement between a logging company and local communities about access to certain forest products may escalate into severe conflict resulting in vandalism or killings (Hotte, 2001; Wenban-Smithm 2001; Wulan et al., 2004; de Jong et al., 2006; Ho, 2006). In the mining sector, soil contamination and river pollution due to extraction related activities brings stakeholders into conflict that is prone to escalation on occasions (Martinez-Alier, 2001; Hilson, 2002a; Hilson, 2002b). Likewise, land disputes between landless farmers and large landholders can intensify because of the proven difficulties in finding an agreed-upon solution in favor of all conflicting parties (Alston et al., 2000). In the fishery sector, we find that cases of conflict amongst fishing hamlets over access to fishing areas also frequently escalate. (Bavinck, 1998; Bennet et al., 2001; Kerr et al., 2006). In short, it is evident that conflict escalation is highly prevalent in NRM.

Despite the prevalence of conflict escalation in NRM, methods for measuring escalation empirically remains poorly understood. As far as we are aware, there are no published studies demonstrating how escalation stages or steps are thoroughly identified. Most of the studies - including those cited above - only provide a limited explanation of escalation stages such as the emergence of conflict or violence stages. The studies do not show in detail how the conflict develops gradually from one stage to another. Therefore, a case study is needed to provide an in-depth situated learning about conflict escalation in NRM (Yin, 1999; Hancock and Algozzine, 2006). While a case study has the capacity to provide in-depth situated learning, it also carries several disadvantages. For example, unless the case is sufficiently representative it is difficult to generate lessons or generalizations applicable to a wider context. The selection of a case study is thus a critical decision in itself.

The main objective of this study is to demonstrate how conflict escalation in NRM can be measured empirically through a case study approach, which may provide a strong basis for mobilizing resources needed to manage NRM conflict effectively. In the next section, we elaborate on the theoretical framework of conflict escalation and explain our specific goals. Subsequently, a short description of the political context under which this study is carried out, research location and main issues involved in the conflict being investigated are provided. This is followed by the methodology, the presentation of our results and, finally, discussion and conclusions.

8.2 Conflict escalation in NRM: a theoretical review

In general, conflict – NRM or otherwise - normally escalates because people tend to ignore low intensity conflict. When a conflict does not pose a severe threat it is often neglected or left unattended (Ayling and Kelly, 1997; FAO, 2000). As a consequence, conflict worsens and can eventually become violent (e.g. vandalism, intimidation and other types of physical engagements). When NRM conflict escalates, actors involved intensify their engagement, mobilize more resources, become more absorbed in the situation and devote extra time to the conflict (FAO, 2000; Susskind et al., 2000; Peluso and Watt, 2001). In a nutshell, conflict escalation in NRM can be described as a step-by-step transformation of conflict from low intensity towards the direction of violence.

That conflict escalation in NRM commonly occurs is well understood. However, what is less understood is the step-by-step transformation of conflict. There has been little attention paid to the different stages that NRM conflict undergoes as it gradually escalates. For example, although small debate can escalate into vandalism, it is not known whether other stages exist in between these two extremes. Since a small debate is less likely to develop directly into violence, it can be assumed that other stages exist between the two. Unless we have knowledge of all these stages, it is unlikely we will ever be able to have a complete picture of conflict escalation. Another aspect that is less understood is patterns of conflict escalation. It is still not known whether conflict escalation in NRM follows certain paths.

Recently, Yasmi et al. (2006) carried out a study on conflict escalation based on an extensive review of NRM conflict cases. Two important results of their study contribute to an improved understanding of conflict escalation in NRM. Firstly, they were able to inductively derive eight stages of conflict escalation in NRM (Table 8.1). They also described various manifestation dimensions for each stage, i.e. types of actions that could be considered to reflect the same level of escalation (the second column). These manifestation dimensions can help empirical identification of escalation stage. For example, if we observe that a particular conflict involves feelings of worry, complaints or rumors then it should belong to the first stage of escalation, namely "feeling anxiety". Their study provides a fundamental improvement in our understanding of the different escalation stages that exist in NRM and how those stages can be measured empirically.

Table 8.1 Escalation stage in NRM conflict (after Yasmi et al., 2006)

Stage	Manifestation dimension
1. Feeling anxiety	Feelings of worry, complaints, rumours, unhappiness, anger, grievance, discontent, disagreement over decision/issues, fear of job lost
2. Debate and critique	Open debate, intense debate, verbal clash, accusation, quarrel, critiques to government policies
3. Lobby and persuasion	Lobbying government, lobbying for compensation, persuading government to acknowledge local rights, lobbying politicians
4. Protest and campaigning	Protest by local people, protest against logging plan, demonstration, mass protest, street rally, convoy of tractors, farmer rally, public rally, logger rally, truck convoy, marching, strike, campaigning and protest by environmental groups, media campaign, letter-writing campaign, protest by religious leaders, protest against a particular plan
5. Access restriction	Squatter invasion, picketing of companies, peaceful take over of the park, blockading logging road, preventing from working on particular areas, imposed restriction on subsistence activities, blockading ports, removal by force, eviction, forced resettlement, displacement, relocation by force, fencing land by big land holders, invasion by landless, closing the road, occupation
6. Court	Court appeal, litigation, regional court case, federal court, lawsuit
7. Intimidation and physical exchange	Threat, death threats, intimidating, threat of boycott, confiscation, machete fight, killing, injury, shooting, ambushing, murdering, attacking, strife, fight, war, violence clashes, bandit attack, damaging district forestry office, assassination, vandalism of park officials' vehicle, burning base camp, arresting, burning opium fields, hiring gunmen, military retaliation, police arrests, putting fire on forest, destroying pipeline, detention, seizing company's equipment, mobilizing soldiers & military hardware, military action, police involvement
8. Nationalization and internationalization	Protest in national and international media (e.g., newspapers, magazine, video), National High Court, State Superior Court, national referenda, bilateral negotiation, influencing national congress, widespread international protest, appeal to International Court of Justice, fight in WTO and NAFTA

Secondly, their study also revealed that conflict escalation in NRM follows a number of common paths. They provided a comprehensive analysis of all possible paths of escalation in the form of "Markov-chain Matrix". The matrix explains which escalation paths are significant and which are less likely to occur. With the help of the matrix we learn that, for example, escalation from "feeling anxiety" to "debate" is always significant. On the other hand, escalation from "debate" to "intimidation" is less likely to occur, which also confirms that high escalation such as "intimidation" does not materialize over night. The following are examples of common paths of escalation in NRM according to Yasmi et al. (2006):

1) "feeling anxiety" → "debate" → "protest" → "court";

2) "lobby" → "protest" → "intimidation";

3) "debate" → "protest" → "access restriction" → "intimidation"

Whilst this study seems to be the only comprehensive analysis of conflict escalation in NRM until recent years, the field of inter-individuals conflict - such as conflict escalation between bosses and subordinates or laborers and industries -has been well studied. One of the most influential studies is perhaps that of Glasl (1997; 1999). He depicted, with a painstaking detail, nine stages of conflict escalation and described a generic path of conflict escalation. Glasl explained escalation as a downward motion because he suggested that escalation moves "deeper and deeper" into the conflict. It progressively activates deeper and more subconscious levels - both in individuals and groups - until these individuals or groups completely lose self-control. In fact, the study of Yasmi et al. (2006) was initially based on and inspired by the Glasl study with several adaptations for an NRM context. For example, they adapted the escalation stages to reflect the characteristics of NRM conflict. Arguing that conflict escalation in NRM is complex, they proposed several common paths of escalation in NRM in contrast to a single generic path described by Glasl for inter-individual conflict.

What is still lacking in NRM is the empirical identification of conflict escalation. Therefore, our study is intended to show how escalation can be measured empirically. Our specific goals are twofold: to measure all escalation stages that exist in the conflict based on the theoretical framework provided by Yasmi et al. (2006); and to investigate the pattern of conflict escalation as well as factors that promote escalation. Our study is therefore expected to deliver further insights based on empirical consideration. Later in this paper, we discuss the important implications of this study and describe lessons that are critical for NRM in general.

8.3 Political context, research location and conflict issues

Our empirical research took place in Sumatra, Indonesia. The conflict being studied was about forest land allocation conflict involving a logging company and local community. A logging company was strongly opposed by local community because its operation was perceived to overlap with the communal forest. In fact, many similar conflicts have occurred throughout Indonesia (McCarthy, 2004). This type of conflict cannot be separated from the political context and forest land use policy in general. Understanding how forest and land are regulated by the Indonesian laws is thus necessary to obtain a sense of what the conflict is about.

According to the Indonesian Basic Constitution, all land, forest, water and other natural resources belong to the state. Consequently, most Indonesian forests are state-owned. The official classification of forest land is defined by the Forest Land Use

Plan Consensus (locally known as *Tata Guna Hutan Kesepakan*) established through inter-ministerial consensus in 1984. Based on this consensus, 142 million ha (about 70%) of the country's land surface was classified as state forest land. Recently, this figure of state forest has been revised to 120 million ha due to forest lost through deforestation, fire and agricultural expansions (MoF, 2004). The authority for managing state forest is with the Ministry of Forestry. Besides state forest, the government also recognizes communal and private forests if legitimate proof exists (GoI, 1999). A particular community who receives a certificate for communal forest can utilize timber and non-timber forest products (NTFPs) for subsistence purposes. However, the land itself remains as property of the State; the community is not entitled to own the forest land. In the case of private ownership, the land is owned by individuals through inheritance and they must be in possession of a government-issued certificate to prove ownership. Due to the complicated procedure in applying for a government certificate for communal or private forest, and the government's lack of knowledge on their existence, many communal and private forests are still not formally recognized. As a result, overlapping claims over the same forest have become an inherent problem in Indonesian forestry.

During the centralistic regime of President Soeharto (1967 – 1998), communal or private forests were often neglected. Contestation of state land was seen as a subversive act and thus subject to military oppression. Therefore, local communities were afraid to claim communal forests and, in accepting that all forests were state forests, were inevitably marginalized from forest management activities. In 1998, the Soeharto regime was "defeated" by the massive and violent student protests. After three decades in power, Soeharto's resignation marked a new page in Indonesian history and saw dramatic changes where decentralization policies were being designed to replace the formerly centralistic policies. With regard to forestry, a set of new policies provided district governments with authority to grant the so called small logging concession permits (i.e. concession area up to 50,000 ha). At the same time, local communities also intensified their efforts in obtaining political recognition of 'their' customary forests. They resisted small logging concessions because many of these concessions operated in communal forests. As a result, small logging concessions were often marred by conflict.

Our study was carried out within this political context where there was a transition from centralistic to a more decentralized mode of government. Like in all cases of political transition, uncertainties about legal framework, high expectation for changes and the struggle for legitimacy were quite apparent in the study area. It was no surprise that conflict was often the logical consequence of this transition as stakeholder groups strived to achieve their objectives. Our study focuses on a forest land conflict between a logging concession and local community in Baru Pelepat, Sumatra (Figure 8.1). The village is inhabited by approximately 600 people and

covers a total area of 7,265 hectares (Kusumanto, et al., 2005). The local community practices shifting cultivation - with rice as a major crop - and manages rubber plantations. They also fell and sell trees from the forest on a limited basis in order to obtain quick cash.
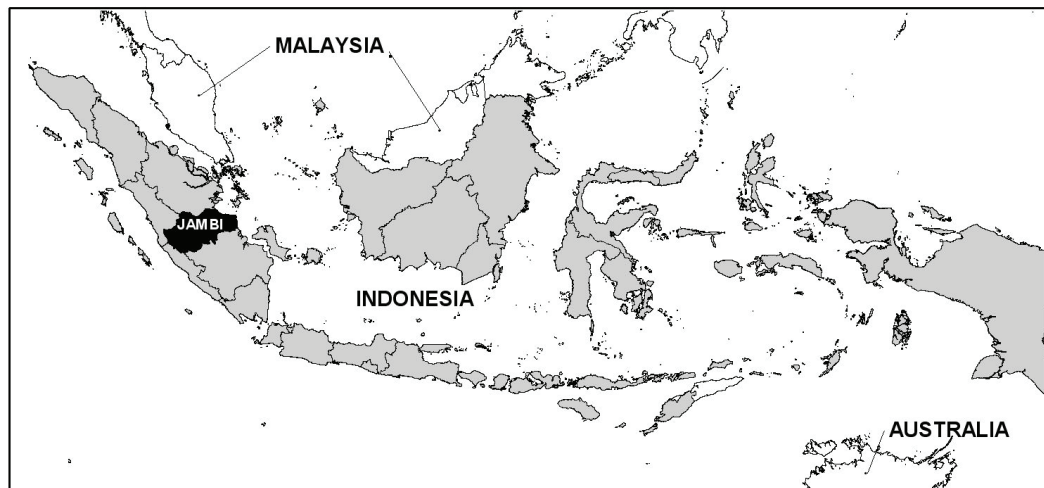

Figure 8.1 Research location

The main issue fuelling the conflict has been a dispute over the official forest boundary. The Baru Pelepat community claimed that the company also logged in the communal forest. Such an action was deemed unacceptable and considered as a denial of the community's rights over forests. Therefore, in return, local community requested financial compensation as well as demanding the company to support local infrastructure development such as renovations to the mosque and village hall. According to local community, the unclear boundary between state and communal forest as well as the economic interests involved induced the logging company to operate in the area. In stark contrast, the company held a completely different perception of the conflict by arguing that it logged within state forest land. It therefore refused to comply with the community's demands arguing that its operation was based on a legitimate permit from the government. Moreover, it perceived local community's demands (i.e. money and infrastructure development) to be unfair and as something which could hinder their operation. According to the company, the underlying source of the conflict was primarily the ignorance on the side of local community with respect to declared state forest land. It accused community of having ignored the state forest boundaries. Conflict inevitably escalated as both parties continued to hold differing perceptions and failed to arrive at an amicable solution. The following sections explain how we investigated conflict escalation in

the area and illustrate how the conflict unfolded and how stakeholders perceived the conflict escalation.

8.4 Methodology

The selection of Sumatra as a case study area was primarily based on four major criteria. Firstly, considerable forestry conflict has emerged in Sumatra since the implementation of decentralization policies in 2001 but research on this topic was lacking. Secondly, Sumatra is relatively accessible allowing us to undertake fieldwork within the limited timeframe available. The Center for International Forestry Research (CIFOR) has carried out multidisciplinary research in the area from which we expected to benefit, particularly in terms of obtaining secondary data (Kusumanto, et al., 2005). Finally, this particular village has long been exposed to conflict with various logging companies but there has been no research that investigates how these conflicts occurred and escalated.

In order to understand escalation stages and escalation pattern, we used a combination of data inquiry methods: interviews, focus group discussion and expert consultation. We conducted 28 semi-structured interviews; each lasted between 45 minutes and two hours. Respondents included representatives from conflict parties (i.e. three senior management staff of the logging company and eighteen local community members). In addition, we also interviewed seven outsiders, i.e. those who are not directly involved in the conflict (e.g. the District Forest Service, researchers, and local non-governmental organizations). The number of respondents represents the saturation point of the data; the point where interviewing more respondents does not provide additional substantive information (Guest et al., 2004).

During the interviews, we investigated respondents' perceptions on the stages of escalation, escalation pattern as well as factors that promote escalation. The approach taken was as follows:

- To investigate escalation stages, respondents were asked about conflict events that they experienced or noticed. Conflict events were defined as the forms of engagement between local community and the logging company from the beginning of the conflict until the time of interview.
- To investigate escalation patterns and factors that induce escalation, respondents were encouraged to describe the sequential development of the conflict events. They were asked how conflict began and developed from time to time in such a way that a pattern of escalation became evident. In addition, they were asked to explain factors that promote escalation from one stage to the next. In other words, we asked them to explain why conflict escalated to the next stage.

Besides interviews, two focus group discussions (FGD) with the local community were performed. Findings were also cross-checked with experts who have been working in the area for a long time. With the triangulation of methods we anticipated that our findings were suitably reliable.

Finally, data were analyzed qualitatively through content analysis by developing codes of the interview texts (Mayring, 2000). In the analysis of escalation stages, codes were based on the escalation stages that have been described by Yasmi et al. (2006). To analyze the pattern of escalation, we arranged escalation stages as described by respondents sequentially. Factors that promote escalation from one stage to the others were described qualitatively.

8.5 Results

8.5.1 Stages of conflict escalation in Sumatra

Five escalation stages of the conflict in Sumatra could be inductively identified following Yasmi et al. (2006) framework, namely: feeling anxiety, debate, lobby, protest, and intimidation. The stage "feeling anxiety" included the feeling of worry, unhappiness and complaints both experienced by local community and the logging company. On one hand, local community was unhappy about the logging that took place in the communal forest. They worried that they would lose their communal forest if the logging was not stopped. Complaints and disappointment about logging operation spread out amongst the community members. On the other hand, the logging company was also concerned about the continued demands from local community for compensation payments and renovation of village infrastructure. The company considered that such demands could jeopardize their business.

The second stage of escalation found in the study area was "debate". This particular stage was also experienced by both sides. One respondent from the community stated, "[...] our traditional leaders (*kepala adat*) went to the company's office. They question the boundary of logging company and argue that it overlaps with our communal forest. During the debate our leaders demand compensation due to the loss of our forest". Similarly, the logging company acknowledged that this kind of debate indeed took place. A staff member of the company said, "Some people from the village came here. They said they were the representative of community near our logging site. We welcomed them and during that time we discussed a lot about the forest boundary. We told them that based on the government regulation the area was defined as state forest. They did not accept and continued to insist that it was their forest. The debate did not come to any conclusion".

Furthermore, the local community suggested that they were involved in a "lobby" against the company. They explained that their leaders lobbied and tried to persuade the company for compensation payments. Nevertheless, none of the respondents from the company admitted that these events occurred. Moreover, the local community stated that they staged "protest" and "intimidation" actions toward the company. As described by one respondent, these escalation stages took place in the forest where the company operated, ".... people from this village came to the logging site and protested to the logging manager. We asked them to halt their operation until after there has been a solution to this conflict. We also threatened to burn down their camp and physically threatened the loggers". In contrast, the company made no acknowledgement of these types of incidents at all. Similar to the perception of local community, outsiders also perceived all the five stages of escalation as illustrated above.

A more detailed content analysis of the data reveals that there are some discrepancies of perception across stakeholder groups regarding these escalation stages (Figure 8.2). The stages "feeling anxiety" and "debate" were perceived by all stakeholders groups. However, not all individual respondents perceived these stages. For example, about 60% and 50% of respondents (from the local community) perceived the "feeling anxiety" and "debate" stages respectively. Additionally, only 30% of outsiders perceived the "feeling anxiety" and 50% the "debate" stage. Interestingly, the other three stages of escalation (lobby, protest and intimidation) were only perceived by local community and outsiders; none of the respondents from the logging company described those stages.

Figure 8.2 suggests that different perceptions exist amongst stakeholders within a particular group and also across groups. These differences could be attributed to two main reasons. Firstly, perhaps the actual differences in perception do exist, i.e. at higher escalation stages like "protest" and "intimidation" less people perceived the conflict. This is a rather contradictory finding because, normally as conflict escalates, an increasing number of people will become aware of the conflict as the engagement becomes much more evident. Nevertheless, the results of this study indicated that, as conflict escalated, only a few people from the community were involved, i.e. local leaders or village representatives. We learned that those leaders did not inform all community members about such actions. One of the community leaders responded, "We do this on our own. We don't want to include all the people to lobby or to protest because we want to try our best first. However, if we cannot solve this we will hold a village meeting. So, perhaps if you talk to other people they may not realize that we have staged a protest or even intimidated the company's staff". Therefore, it is clear that perception is highly influenced by the amount of information people have.
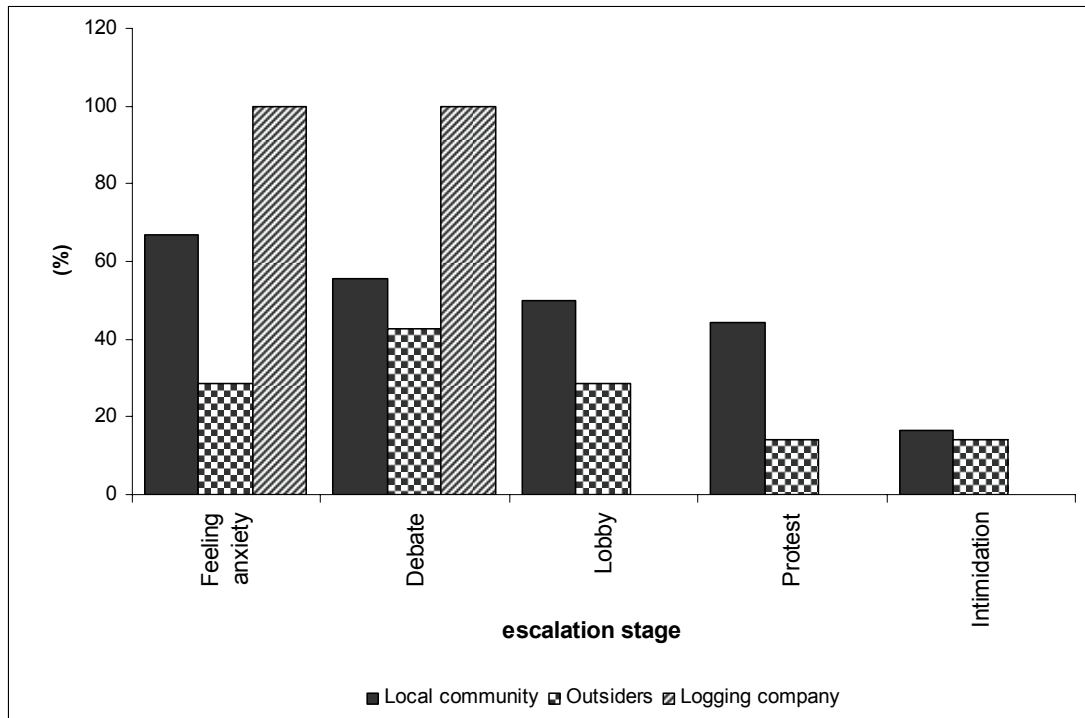
Figure 8.2 Perceived escalation stages across stakeholder groups (n = 28)

Secondly, differences in perception can also be attributed to the political motivation of stakeholders (politically-driven). For example, respondents from the company did not identify with the other three stages of escalation. This curious omission was later explained by the fact that that the company might have intentionally not made mention of these stages in order to leave the impression that the conflict was not so serious. One of the NGO members who worked with the community in the area told us, "I think the company did not mention the protest or intimidation stages purposely. I am sure they do not want to inform these stages because they do not want to give a bad impression to others. They want to keep their reputation".

8.5.2 Pattern of conflict escalation and factors influencing escalation in Sumatra
In order to understand patterns of conflict escalation, the sequential development of conflict is illustrated. Whilst it may already be evident that each stakeholder group had a different interpretation over the escalation of the conflict, it is also clear that there were some similarities between the perception of local community and outsiders. Given this fact, Figure 8.3 depicts a pattern of conflict escalation based on their perception. The figure describes the approximate time (horizontal axis) in terms of months when each stage took place and the respondents' argumentation as to why the conflict escalated from one stage to the other (bullet points). In Figure 8.3, we

depict escalation in an upward movement for didactic reasons. We purposely describe escalation as the process of progressive intensification of engagement in which conflict actors are continuously increasing their involvement in conflict. They mobilize more resources and devote more time to the conflict.

The "feeling anxiety" stage was experienced by the community between March and May 2004. During this period, the community became very anxious and irritated with the fact that the company operated within the communal forest. These sentiments were exaggerated by the fact that the company did not request their permission prior to commencing logging. The community was therefore highly upset about this fact. The following two reasons explained why the community escalated the conflict into "debate" stage: firstly, they increasingly saw logging as a denial of their right to the forest; secondly, they also feared that if they did not put a stop to the logging then past experience (i.e. engaging in conflict with another logging company for similar reasons) would be repeated. The community has thus been traumatized by outside logging activity as they have received no benefits despite their forest being continuously exploited. As a result, the community chose to enter into a "debate" phase with the company. They disputed the forest boundary and insisted that they also had rights to the forest. These debates lasted for approximately three months (June – August 2004) during which time the community demanded compensation from the company.

However, the company did not seriously consider these demands arguing that its operation was legitimate and within the state forest boundary. It refused all the community's demands for compensation and assistance in developing village infrastructure. As a result, local community became very frustrated. Through their representatives, the local community continued to "lobby" the company for about a month in September 2004. Representatives visited the head office of the company and discussed the possible forms of compensation - even lowering the compensation amount they initially requested the company to pay. Nevertheless, from the community perspective, this effort also ended with unsatisfactory results, as the company remained unwilling to respond positively. At this point, the local community lost all patience and chose to "protest" the company. Ten people, mainly local leaders, traveled to the logging site and made harsh demands for a halt to all current logging activities. During this protest, community members carried machetes as way of displaying their serious intent.

Subsequently, logging activities were ceased entirely for a few days. However, soon after, local community members returned to the site and again demanded compensation after receiving news that logging had already resumed. However, the onsite staff replied that they did have the authority to make decisions related to compensation and suggested that the local community discuss the issue with the board of management residing in the capital city. At this point, local community

members were no longer able to accept the fact that their demands were still not being heard.. They subsequently launched "intimidation" tactics to locally based workers by threatening to burn down the logging camp and all logging equipment if the company did not offer acceptable compensation. They also threatened to murder logging workers if the company did not immediately cease logging activities. As a result, logging activities were again closed down.

Whilst the above describes the escalation pattern as perceived by local community and outsiders, a contrasting pattern of escalation was described by the company. The company only described two stages of escalation: "feeling anxiety" and "debate". Respondents stated that they worried about the continued demands made by the local community and acknowledged that they had entered into a series of debates about the forest boundary with local community. However, none of the respondents from the company explained the "protest" and "intimidation" stages. As said earlier, this reality could also be linked to the political reasons of the company to save its reputation.
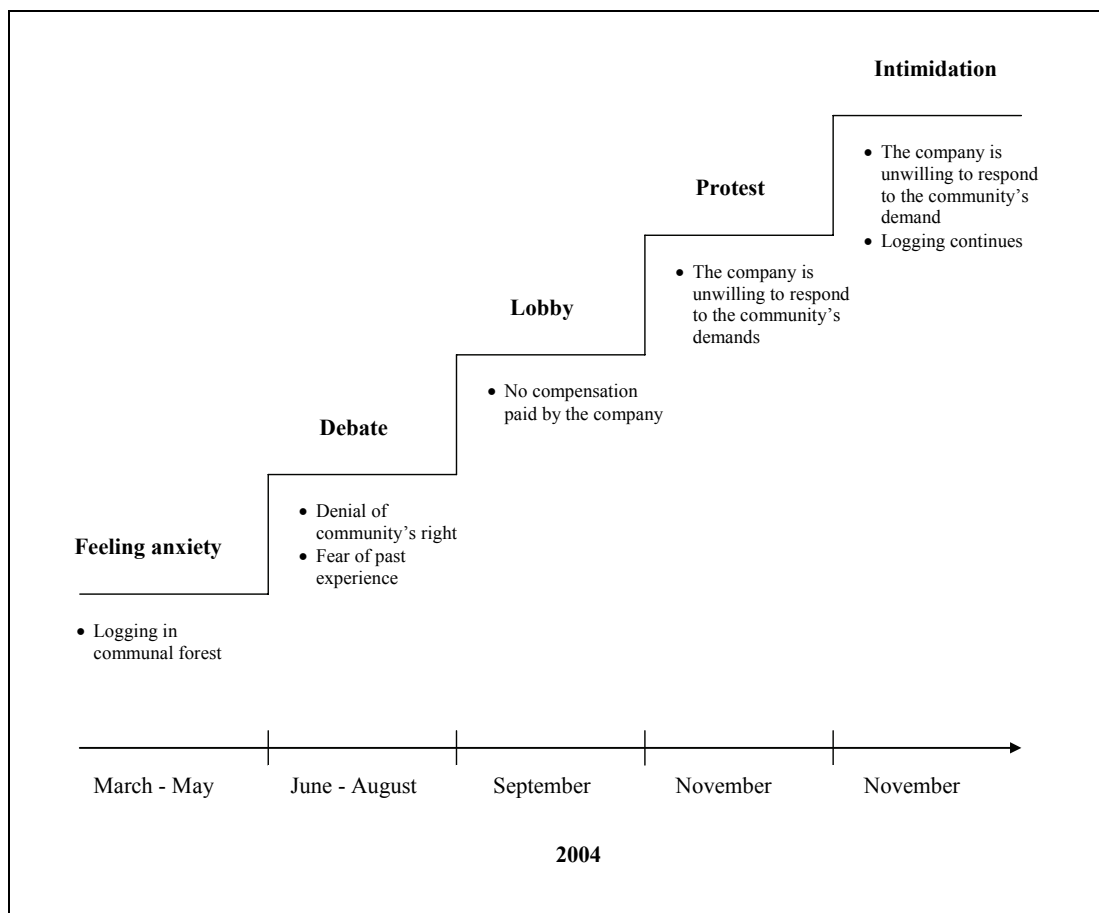
Figure 8.3 Conflict escalation pattern in Jambi, Sumatra

8.6 Discussion and conclusions

While every conflict is unique in itself, many conflicts exhibit similar characteristics. They revolve around the same issues and involve more or less the same actors. Forest land allocation conflict as we present in this study is perhaps one of the most common types of NRM conflict. The main issue in the conflict is often about access to forest products such as timber, which is frequently defined by land boundary or allocation. As a consequence, the vagueness of boundary and the overlapping claim to the same land are commonly the underlying issues in the conflict. Moreover, the main actors involved in this particular conflict are usually local communities and logging companies. Due to their close proximity to the forest and based on the land use that they inherited from their ancestors, local communities often regard forest area around their village as their territory. They do not subscribe to the formal land classification from the government (Alston et al., 2000; Ho, 2006). Conflict normally emerges because a logging company who receives concession rights from the government is considered to be logging in community territory. This type of conflict occurs throughout the world (see e.g. Mc Carthy, 2004; Wulan et al., 2004; de Jong et al., 2006; Ho, 2006). Because land allocation conflict is so commonplace, we may draw a number lessons and generalizations relevant to a wider context based on our findings in Sumatra.

Firstly, this study demonstrates that escalation stages and patterns can be measured empirically. We also learn that high escalation stages such as "protest" and "intimidation" do not immediately take place as soon as the conflict emerges. The conflict develops step by step until it reaches those stages. It begins with the "feeling anxiety" and then develops into "debate" and subsequently to "lobby". Only when these three stages fail to bring a solution do "protest" and "intimidation" take place. More importantly, the transition from one stage to another is fuelled by a number of factors. For example, denial of a community's right brings conflict from "feeling anxiety" into a "debate" stage. Transition to the next stage can only take place if such factors exist. Therefore, we can conclude that our study in Sumatra clearly indicates that intense conflict does not materialize out of thin air; it gradually develops following a number of stages and escalation is promoted by a number of factors.

Secondly, the escalation pattern found in this study is comparable to the framework proposed by Yasmi et al. (2006). In contrast, we learn that although an escalation pattern can be identified empirically, actors do not share the same perception on escalation; there is information asymmetry. As our results revealed, this is particularly the case when not all respondents have identified with all five escalation stages. Even within local community itself, there were different interpretations on escalation. Many of them, for example, only identified with two

initial stages of escalation while community leaders identified with all five stages. Therefore, we can conclude that stakeholders did not experience escalation stages in the same way. Some of them, particularly community leaders, took part in the protest and intimidation and thus could identify with these stages. On the other hand, the majority of community members did not even know that such stages existed. They did not have any information about such stages. Hence, it is increasingly evident that while information plays a significant role in forming the perception about escalation, it was not equally shared by the stakeholders.

The fact that information asymmetry exists has a number of implications for the efforts to mobilize resources to manage the conflict effectively. The most important implication, for example, for conflict mediators is that he/she should understand exactly how information is shared by stakeholders. Assessing the level of information possessed by different stakeholders may be the first important step prior to the development of appropriate conflict management strategies. Another implication is that perhaps there is a necessity to develop a shared understanding of the conflict among various stakeholders before even attempting to manage it. In this regard, information sharing and exchange are important for allowing stakeholders to become aware of the differences in information - and thus perception - that exist between them. When stakeholders arrive at the same level of understanding, perhaps conflict management can be better implemented. Another important consideration for conflict management is how to mobilize the resources needed to bring effective solutions to the conflict. In this regard, the escalation framework provided by Yasmi et al. (2006) can offer guidance. For example, the framework may help indicate how escalation will continue to develop if there is no immediate solution to a conflict. Knowing which level of conflict will follow and the factors that are likely to promote its escalation can provide strategic direction in terms of mobilizing the resources needed for managing the conflict. In other words, the escalation framework can also be used as a predictive approach to conflict management and resource mobilization.

Finally, there are some critical lessons that can be drawn from this study in relation to specifically addressing land allocation conflict in Sumatra. Land allocation conflict as such is often exacerbated by ambiguous land use policy as described at the outset of this paper (McCarthy, 2004). An implication is that unless the ambiguity in land use policy is adequately and jointly addressed by the government and other stakeholders, land allocation conflict as we present here will continue to characterize NRM. Our experience in Sumatra clearly sends a strong message to the Indonesian government to take immediate actions to resolve the vagueness of land use policies in the country. While this task is neither easy nor simple, promoting a dialogue among stakeholders may be a first decisive step to pursue. In a period of transition, like that which Indonesia is currently experiencing,

multi-stakeholder dialogue is essential. Government must take a central role in promoting such dialogue.

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9

General discussion and conclusion

9.1 Conflict capability in NRM: How much have we learned?

9.1.1 The applicability of conflict capability in a NRM context

With all the complexities associated with NRM conflict, the pervasiveness and the many destructive consequences that it brings, it was reasoned that there was an urgent need to address NRM conflict more adequately (Ayling and Kelly, 1997; Walker and Daniels, 1997). In relation to this, the concept of conflict capability was argued to hold potential for NRM in view of the weakness of conventional approaches and their associated conflict competency in bringing positive socio-political changes (Buckles, 1999; FAO, 2000a; FAO, 2000b; Castro and Nielson, 2003). Earlier application of conflict capability in the field of inter-individual and organizational conflicts has demonstrated the fruitfulness of the approach (Glasl, 1997; Glasl, 1999; Jordan, 2000; Zapf and Gross, 2001; Mason and Rychard, 2005). This particular study was intended to explore in how far the concept is applicable in a NRM context and what potentials it has for the institutionalization of conflict capability in NRM.

Using a mix of systematic theoretical analysis and empirical cases (Brewer and Hunter, 1989; Howe, 1992; Creswell, 1994), the notion of conflict capability in a NRM context has been critically investigated. Generally speaking, this study demonstrated that the concept of conflict capability is relevant for NRM, particularly

based on the need to move forward in terms of avoiding negative outcomes (Kaplan, 1994; Homer-Dixon, 1999; Alston et al., 2000; Martinez-Alier, 2001; Wenban-Smith, 2001; Adams et al., 2003). Conflict capability is considered an alternative approach to addressing NRM conflict. Based on the results gathered thus far, it is obvious that conflict capability has a number of conceptual similarities with the conventional approaches. In that sense it cannot be considered a purely new approach in itself. Table 9.1 summarizes these similarities as well as differences.

Table 9.1 Conflict capability and the conventional approaches

Approach	Main assumption	Main objective	View of conflict	Immediate solution	Use of coercion	Conflict learning
Conflict resolution	Every conflict has to be resolved	Terminating the conflict	Pessimistic	Yes	Yes	No
Conflict management	Conflict is complex and can never be entirely resolved	Finding a compromise	Neutral	No	No	No
ADR		Negotiated agreement	Neutral	No	No	No
Conflict capability	Conflict is having a constructive force	Preventing destructive conflict escalation	Optimistic	No	No	Yes

First, there is a stark difference between conflict capability and conflict resolution (Coser, 1967; Zartman, 1991) because the idea of terminating conflict as the main objective of conflict resolution contradicts the notion of conflict as being a positive force for changes. It becomes clear in Chapter 3 that conflict resolution in itself overestimates the potential disadvantages of conflict (Hirschman, 1994; Bailey, 1997; Kriesberg, 1998). For example, conflict is seen as an entirely negative social phenomenon and disruption to the stability that needs to be immediately terminated. It can be said that conflict resolution sees conflict from a pessimistic point of view. Consequently, it is not surprising if it requires an immediate solution to the conflict. Due to the pessimistic view, conflict resolution advocates the termination of the conflict with whatever it takes, including the use of coercion and suppression (e.g. Airaksinen, 1988). Therefore, the outcome of conflict resolution may not necessarily be "win-win" in nature. Particularly when coercion and destructive power are used, the outcome will be most likely "win-lose". In that particular situation, conflict may have been terminated but the underlying impairment remains unaddressed, leaving a

new ground for another conflict. Another difference is that conflict resolution only focuses on the "current" conflict and thus can be regarded as paying less attention, if at all, to "conflict learning", i.e. the use of conflict for strategic improvement of the capacity to cope with future conflict events.

Second, the concept of conflict capability has a number of differences with conflict management and ADR too. The last two concepts have a relatively "neutral" view on conflict as they see conflict as a complex social phenomenon and emphasize the achievement of compromise and negotiated agreement (Wall and Callister, 1995; Daniels and Walker, 2001). In contrast, conflict capability has a more optimistic view, suggesting conflict as being a constructive force for change. Another difference is related to "conflict learning". Conflict capability emphasizes the ability to develop and institutionalize a capacity to cope with conflict effectively, which suggests the necessity for systematic learning. It focuses both on addressing the "current" conflict and also the strategic anticipation of future conflict events based on the understanding of impairment and escalation. Finally, there is also a difference in the reasons why conflict is conceptualized. While conflict capability focuses on impairment and escalation, conflict management and ADR focus on general conception of conflict as differences and incompatibilities (Galtung, 1965; Wall and Callister, 1995; Bartos and Wehr, 2002).

While conflict capability differs conceptually from conflict management and ADR, however, there are some similarities among them. They do not favor the immediate termination of conflict like conflict resolution nor do they allow the use of coercion in addressing the conflict (Fisher and Ury, 1981; Susskind et al., 2000). Both conflict management and ADR emphasize the necessity to develop a robust process for the achievement of compromise or a negotiated agreement: they strive towards a "win-win solution". In conclusion, conflict capability seems to add a substantial understanding over the conflict next to the principles of achieving a win-win solution described by conflict management and ADR. Furthermore, as will be discussed later on, it allows a deeper insight into NRM conflict though impairment and escalation delineation and lays a strong foundation for addressing the conflict. The applicability of conflict capability in NRM is further elaborated and discussed in the sections that follow, particularly in relation to its two basic requirements (i.e. distinctive conceptualization of conflict and its escalation) and the process of its institutionalization.

9.1.2 Delineating conflict from non-conflict in NRM
In Chapter 3, following Glasl (1997; 1999) a distinctive conceptualization of NRM conflict was demonstrated. NRM conflict was defined as a step beyond merely differences or incompatibilities as is usually done in most conflict literature (e.g. Coser 1956; Bartos and Wehr 2002). From a theoretical point of view, it is

"impairment" – not differences or incompatibilities - that provides a clear conceptual boundary between NRM conflict and non-conflict situation. The delineation of impairment categorization as described in that chapter clearly indicates that the distinctive characterization of NRM conflict can be made and that NRM conflict can be differentiated from non-conflict situation. The empirical cases support the distinctive conceptualization of NRM conflict through the impairment model. Chapter 2, for instance, showed overlapping claims on the same customary forest that result in conflict because the small logging company has made an agreement to log through one of the villages. Delineating the concession area was perceived as impairment by another village whose claim overlapped with the area being delineated. The impaired village considered such action to prevent its ability to have access to such forest and forest products within that area. Prior to the small logging concession era (i.e. when forest management was centralized under the Soeharto regime) both villages were not concerned about the overlapping claims. Both did not feel any impairment by then although they had different interpretations of the forest boundary. Thus, while different interpretations of the boundary remained constant over a period of time, the perception of impairment changed. Looking at this particular case, without use of the impairment model it is hard to imagine how different interpretations of a forest boundary can be distinguished from an actual conflict situation.

Another example of the distinctive conceptualization of NRM conflict is given in Chapter 7 where differences in customary laws regarding fishing gear between fishing hamlets in the *Malay's* settlement arguably cannot be equated to conflict. Unless such differences result in action that is perceived to threaten the fish stock by a particular fishing hamlet no conflict exists. Using conventional conflict analysis will immediately point to such differences as a conflict. What was demonstrated in that particular chapter was that only after an action was taken and perceived as impairment by another hamlet did the conflict emerge. That particular chapter again showed that while differences in terms of customary laws still persisted, the perception on impairments changed. For example, in the past there was no impairment felt as a result of using destructive fishing gear by a particular hamlet because at that time there was enough fish stock and low population density in the area. In summary, the empirical cases showed the applicability of the impairment model in NRM. Therefore, the main concern of Fink (1968) and Dadrian (1971) that conceptualization of conflict through differences or incompatibilities lack rigor seems to have been addressed by the impairment model with empirical applicability as well.

This study argues that differences or incompatibilities do not reflect a conflict situation but rather reflect the underlying sources of conflict, i.e. antecedent conditions as described by Fink (1968) and Dadrian (1971). Differences trigger

certain actions and only until after such actions are experienced as impairment, conflict emerges. The impairment model as described in this book also permits us to investigate these conditions (i.e. sources of impairment). Relating the sources of impairment to antecedent conditions of social conflict in general, it becomes clear that NRM conflict emerges not only because of differences in interests or goals as in most inter-individual conflicts but rather because of a variety of conditions such as scarcity, unclear boundaries, non-compliance, legal pluralism, weak leadership, etc. Here again, it can be concluded that the dimensions of NRM conflict is much broader than inter-individual conflict, confirming the earlier observation of the inherent complexity of NRM (e.g. Ostrom, 1990; Buckles, 1999; Hellstrom, 2001; Adams et al., 2003). With the complex institutional arrangement and the diversity of values (i.e. material and cultural values) attached to NRM, it is anticipated that the sources of impairment and the range of issues associated with NRM conflict are relatively diverse. Therefore, this finding is quite consistent with other NRM studies that describe the diversity of underlying issues involved in NRM conflict (see e.g. Pace, 1992; Hellstrom and Reunala, 1995; Pomeroy et al., 2001; Bennet, et al., 2001; Rantala and Primmer, 2003; Yasmi, 2003). What can be learned from this study is that the application of the impairment model provides a more rigorous basis for understanding the range of issues associated with NRM conflict and it becomes clear that NRM conflict in no way can be reduced to differences in interests and goals as those are only conditions or antecedents.

The complexity of NRM conflict is not only reflected by the diversity of impairments and their sources but also by the diversity of conflict actors. This study and a more recent one (Marfo, 2006) show that a particular actor can have conflict with various other actors at the same time (see Chapter 7 on inter- and intra-settlement conflict). Hence, this particular finding is consistent with the majority of other studies that unlike inter-individual conflict, NRM conflict most of the time is about multi-actor conflict (Doornbos et al., 2000; Adams et al., 2003; Jamal and Eyre, 2003). As shown in a number of empirical cases, actors involved in NRM conflict could be local communities, local government, central government and various private companies at the same time. A particular actor can engage in a range of conflicts with other actors involving a set of issues. So, it is correct to say that although the impairment model was initially developed for two actor conflict, this study showed that it was applicable for multi-actors conflict as well. In the latter case, the investigation of impairment and its sources requires two steps. First, the conflict has to be broken down into a set of two-actor conflict constellations (Marfo, 2006). Second, it involves defining within each of the sets which actor is impairing and which one is being impaired. In the Danau Sentarum National Park case (Chapter 7), for instance, a multiple actor conflict situation was investigated in which the conflict was broken down into a number of two-actor conflict constellations. In

summary, this study has moved the application of the impairment model in NRM forward beyond its original application in the two actor conflict constellation (Jordan, 2000; Zapf and Gross, 2001; Mason and Rychard, 2005).

Despite the multi-actor nature of NRM conflict, however, the impairment model allows actor relationships within any given set of "impairing - impaired scenario" to be taken into account because it focuses on actors' behavior. Put differently, the model clearly indicates "actor who acts to impair" and "actor who feels impaired". However, it must be borne in mind that impairing and impaired actors may be continuously changing over a conflict life cycle because of the reciprocal action-reaction sequence involved in conflict. In fact, other studies have already shown the reciprocal action-reaction scenario of NRM conflict (see Lewicki et al., 2003; Ho, 2006; Marfo, 2006). This action-reaction scenario reflects the dynamics of NRM conflict where conflict actors continuously adapt their strategies. If this is true then this study agrees with the majority of conflict studies that within any conflict setting actors are strategic, adapting their strategies in the course of exercising their power and other resources (Thomas, 1999; Leach et al, 1999; Jensen, 2003). The Sumatran case (Chapter 8), for example, showed that the local community was initially impaired by logging activities that took place in the communal forest. When the local community reciprocated by imposing a number of demands, the company, too, felt impaired. Thus, it is possible that the experience of impairment is felt initially by one side but as the conflict escalates both sides can feel it as they impose their reciprocal actions throughout the conflict life cycle. In short, it can be concluded that this study reinforces the notion of the actors' continuous adaptation strategy in conflict.

Summarizing all the empirical cases in this book, an adapted model of NRM conflict is given in Figure 9.1 - adapted based on the original model in Figure 4.2. The figure reflects impairments and the sources of impairments that could be identified empirically. Out of four impairments deduced from the literature, three were identified in this study and five out of seven sources of impairment were found empirically. The "degrading" the environment as an impairment was found in the case of conflict in Bulungan Research Forest (Chapter 6) where river pollution by a mining company impaired local communities and subsequently caused a major conflict. The main source for this conflict was the "non-compliance" of the mining company with environmental law. In the same area, logging also caused major problem to both soil and community crops. Furthermore, the use of poison in fishing by the *Dayaks* as described in Chapter 7 also caused conflict with the *Malays* as this practice threatened the fish stock. The main source of this conflict was the different fishing regulations between the *Dayaks* and *Malays* ("legal pluralism") and "scarcity" of the fish stock.

"Restricting" access was identified, for example, in the West Kalimantan case where a number of IPPK (small logging companies) operated on the same piece of

forest (see Chapter 2). The main source of this impairment was "unclear boundary" between IPPK's area due to the fact that a boundary was only defined on paper. Another example of "restricting" access was given in Chapter 7 in the case of fishing conflict in Danau Sentarum National Park. It was experienced as impairment by many hamlets because neighboring hamlets went fishing in the same fishing zone. The main source of this conflict was the "unclear boundary" of fishing zone and also the "scarcity" of fish in the area. Chapter 8 described further how restricting access could lead to an escalated conflict between a logging company and local community in Sumatra, which was stimulated by the "unclear boundary" between communal and state forest. Finally, "abusing" authority, for example, by the community coordinators was discovered to impair community members in the case of small logging conflict in West Kalimantan (Chapter 2). The study revealed a number of corruption acts committed by community coordinators who played an active role in acquiring community logging permit. These coordinators used community money that could not be accounted for and the mechanism for fund distribution was not transparent. The main source was "weak leadership". It must be mentioned that at this stage it is impossible to distinguish which impairments and sources are more significant than others. In order to do so, more empirical scrutiny is required.
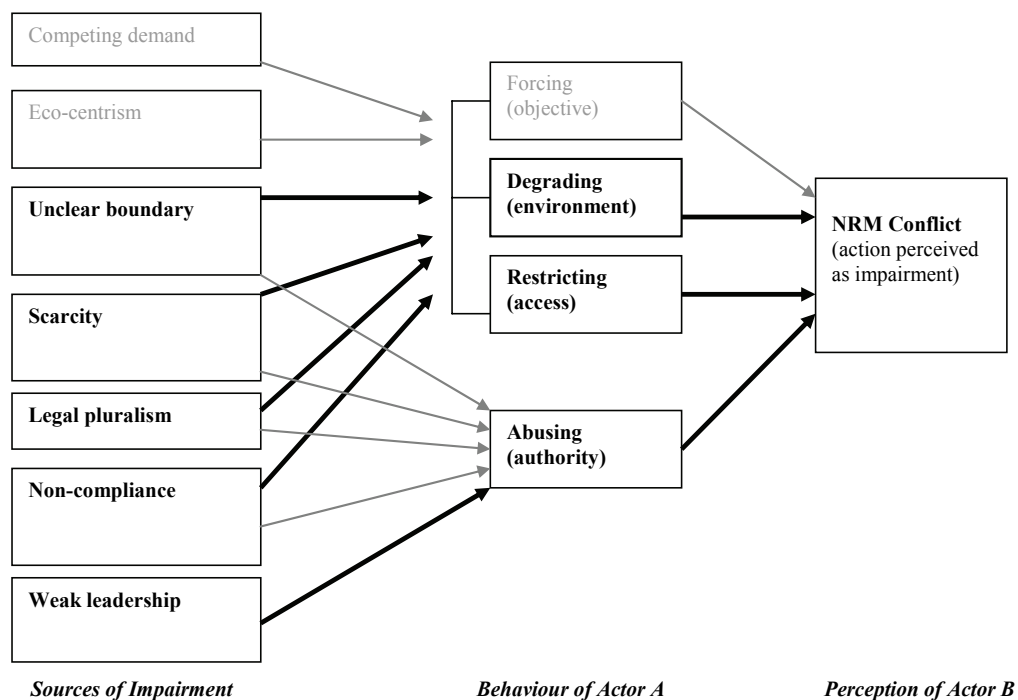
9.1   Impairments and sources of impairments in NRM (adapted based on empirical insights)

Despite the many advantages of the impairment model, there are a number of areas unable to be covered by this study and thus remain open for future research. First, the impairment model seems to suggest that actors can be delineated into distinct groups: impairing actor and impaired actor. Separating actors into these groups may be easier in the case of inter-individual conflict upon which the impairment model is originally developed. However, in the context of NRM, actors most of the time are collectives. Therefore, to say that there is a conflict between a local community and a logging company or between a local community and a mining company as depicted in Chapter 6 is to assume implicitly that local community, logging company or mining company is a homogenous entity composed of members who have the same experience in the conflict. This general assumption, which is also often used in many other conflict studies, is somewhat problematic. Community members are not homogenous, says Li (1996), who contends that in many circumstances they have different perceptions and experiences over resource management. As a consequence, actors within a particular group may also experience conflict differently (see e.g. Salazar and Alper, 1996; Leach et al., 1999; Soneryd and Uggla, 2000). In fact, Chapter 8 clearly demonstrated how conflict was experienced differently by community members and how they possessed information asymmetry over the conflict. An implication for the study of NRM conflict with regard to actor categorization is that careful attention must be paid to the fact that actors may not experience impairment equally. It is therefore necessary to investigate which actors within a particular group, such as a local community or a logging company, are being severely impaired, which could potentially help us to focus conflict management efforts.

Second, there is a concern about the so-called "invisible" actor. For example, Marfo (2006) while explaining the case of forestry conflict in Ghana suggests that impairment might be felt without knowing the actor who executes the impairing action. He describes that a particular actor is impaired because "someone" unknown has cut a tree or has destroyed his crop. In such a situation the impairing actor is unknown. Whilst impairment is felt, he questions whether conflict has emerged or not given the invisibility of the impairing actor. In the empirical cases described in this book, such an invisible actor situation is not observed. All actors involved in conflict could be explicitly identified. While the cases in this book did not identify scenarios of invisible actors, the possibility has been demonstrated. The essential point is that even in such situations, the agency of invisible impairer is imposed on some other actors, thus creating the two actor constellation.

9.1.3 Distinguishing conflict escalation in NRM

It was shown that conflict escalation in NRM can be conceptualized distinctively. Taking Glasl's escalation model as a starting point, what became clear was that the stages of escalation must be adapted to reflect the characteristics of NRM conflict. Eight distinct stages of conflict escalation in NRM were identified, namely: lobby, court, protest, feeling anxiety, debate, access restriction, physical exchange, and nationalization/internationalization. A deeper analysis through a Markov Chain Matrix revealed that NRM conflict exhibits many significant escalation patterns. In other words, there is no single generic pattern through which NRM conflict escalates. Figure 9.2 describes two of the common patterns of conflict escalation to illustrate how stage transitions occur. In both cases, escalation is described to have four stage transitions. The first part of the figure reflects a stage transition starting with "debate" and ending with "intimidation" while the other beginning with "feeling anxiety" and finally reaching the stage "court".
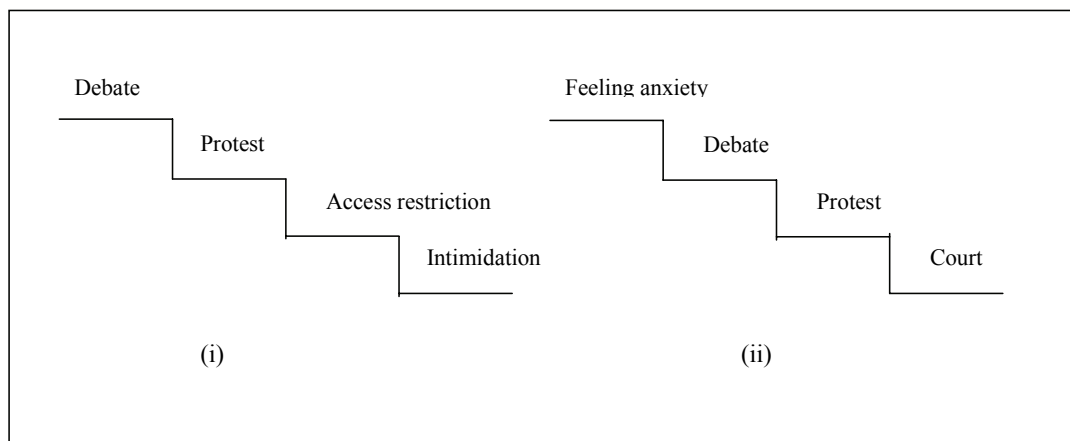
Figure 9.2 Two major significant escalation patterns of NRM conflict out of eight

The presence of multiple escalation patterns in NRM conflict poses an interesting theoretical challenge, for example, as to what extent NRM escalation conceptualization can be generalized. In view of the diversity of escalation patterns, it is perhaps logical to assume that the degree of complexity of NRM conflict escalation is much higher compared to inter-individual conflict in general. As shown in Chapter 5 escalation of inter-individual conflict seemed to be much more predictable and followed certain common stage transitions. All escalation studies that have been done in this field somehow suggested the predictability of escalation stage transitions and also showed less variety of escalation patterns (see e.g. Pondy, 1967; Pruitt and Rubin, 1986). Perhaps, an explanation for this less complex pattern in inter-individual conflict is due to the rather isolated issues and limited actors that are involved in such a conflict. Therefore, a generic heuristic model of escalation pattern,

for instance, as proposed by Glasl (1997; 1999) can be relatively easily generated. In contrast, this study was unable to produce any generic escalation model in NRM. The escalation patterns seem to vary from one case to the other in NRM. What this study proposed instead was eight general escalation stages. Most probably these eight escalation stages were comprehensive enough because they were derived from a wide spectrum of conflict cases taken from different socio-political contexts. The ability of this study to generalize escalation stages as such shows that the value of a systematic analysis lies in its ability to generate enlightenment and contribute to a theory (see Druckman, 2005). However, the insights gathered thus far still need further scientific and empirical scrutiny. What needs further investigation, though, is the relationship between context and escalation pattern. In Chapter 5, the need to narrow down the escalation analysis into a specific NRM context was recommended in order to see if context plays a significant role in determining escalation patterns.

The empirical application of the escalation model was provided in Chapter 8. That chapter demonstrated how the escalation framework was applied into an empirical case in Sumatra. This particular case illustrated that the escalation stages of conflict could be delineated. It showed a conflict between a logging company and a local community that began with the "feeling anxiety" stage. It is described to escalate further to the "debate" stage because all attempts to find a solution fail. The conflict continued to escalate to "protest" before reaching its highest stage, so-called "intimidation". Each escalation stage could be identified based on a number of observable actions. Therefore, the findings in Chapter 8 reinforce the notion that escalation takes place gradually following a number of intermediary stages and that high escalation does not materialize all of a sudden (Pondy, 1967; Jehn 1997; Kriesberg, 1998). Another important observation from the case was that that conflict escalation was perceived in many different ways by the conflicting parties due to information asymmetry. Information was not equally distributed across stakeholder groups, leading to different interpretations of the conflict. In fact, information asymmetry is not a new subject in NRM. There have been a lot of discussions on this topic and how it leads to misunderstandings and different ways of framing conflict (e.g. Simola and Luotonen, 1997; Gray, 2003; Lewicki and Gray 2003; Rijsberman and Mohammad, 2003). The Sumatran case (Chapter 8) therefore reinforces that information asymmetry prevails in NRM and as a result different appreciation of the conflict emerged. An implication is that any attempt to understand escalation must take into account the possibility of information asymmetry in order to provide a hint on how the conflict can be best addressed.

The Sumatran case also shed more light on conditions that enabled conflict to escalate to the next stage. For example, the inability of the logging company to take into account the aspiration of local community allowed the conflict to escalate into "protest" and "intimidation" stages. Both parties were not competent enough to

156

negotiate in such a way that a common understanding could be developed between them. There was no willingness shown by either party that they were ready to engage in a positive negotiation. It was also quite obvious that escalation continued to occur because the underlying impairment was inadequately addressed. For example, "cutting in communal forest" was perceived as impairment by the local community in Sumatra. Nevertheless, during various occasions where negotiation and lobbying took place, this particular impairment could not be addressed. As a result, conflict continued to escalate to higher levels. A major conclusion that can be drawn is that addressing impairment itself is a crucial aspect for preventing conflict escalation.

Despite the ability of this research to conceptualize the stages of conflict escalation, escalation patterns and also to empirically demonstrate the applicability of the escalation framework, there are a number of areas that are not yet covered. First of all, this study has not been able to determine systematically different capacities needed to address NRM conflict at different stages of escalation. Nevertheless, in the next section, as we discuss the institutionalization of conflict capability, it will become clear that there are a number of hints that can be generated from the current study regarding these capacities. Second, this study cannot delineate the so-called "point of no return" beyond which escalation becomes always destructive. Defining the "point of no return" in NRM conflict seems quite challenging and may not be simple and straightforward. These difficulties can be attributed to two main reasons: the complexity of escalation patterns and the existence of information asymmetry as described earlier. Nevertheless, there are a number of assumptions that can be made regarding the "point of no return" given the information that has been generated by this study. For example, in Chapter 5 the eight stages of escalation were identified based on the impairing action involved in the conflict (see Table 5.2). Based on this table, we can observe that there are already various indications of destructive and non-destructive escalation levels. The following stages are more or less controllable and thus can be assumed to be non-destructive: "feeling anxiety", "debate and critique" and "lobby and persuasion". However, "protest", "access restriction" and "intimidation" stages seem to be rather intense and volatile which can turn violent. The "protest" stage that includes farmer rallies, mass protest, etc. may end up in a clash between conflicting parties. Likewise, the "intimidation & physical exchange" stage is also very destructive as they include machete fights, military retaliation, etc. Therefore, they are most probably destructive. If they are not addressed adequately, they can result in a "no way back" situation as conflict has progressed too far to be addressed constructively -- we no longer have the conflict but the conflict has us! (Glasl, 1997; 1999).

Taking the Sumatran case as an example, the conflict also involved "protest" and "intimidation" stages. These stages brought about a number of negative consequences such as hatred, frustration, and physical engagement. On the other

hand, the stage like "debate" or "lobby" seems to be rather non-destructive in nature. At debate and lobby stages the local community could make their demands and position clear. This phenomenon seems to suggest that certain escalation levels can be constructive as they allow disputants to grasp what is at stake. There is a necessity for a further exploration of different stages of conflict escalation, for example, to see whether it is possible to derive certain understandings of which stages are constructive, which ones are not and to what extent the "point of no return" can be identified. It is also possible that this point is rather arbitrary in NRM context depending on the experience of conflict actors. The discussion of the "point of no return" is elaborated further in the next section on institutionalization of conflict capability.

Third, this research thus far only focuses on escalation stages, which perhaps implicitly suggests that once they emerge, NRM conflict always escalates. However, we know that this is not true: conflict indeed does de-escalate or stabilize (see Deutsch, 1973; Kriesberg, 1998). For instance, very often an agreement can be reached in a conflict between a forest company and a local community. Successful conflict cases where escalation is reduced can be observed in several studies (e.g. Buckles, 1999; Daniels and Walker, 2001). Furthermore, the Markov-chain Matrix analysis in Chapter 5 indeed showed that de-escalation and stabilization patterns exist (se Table 9.2 - highlighted). For example, the "debate" stage de-escalates into "feeling anxiety" in 10% of the cases, while the "intimidation" de-escalates into "court" in 36% of the cases. In addition, in a number of circumstances escalation stage stabilizes, i.e. it does not change. For example, 19% of the stage "protest" neither escalate nor de-escalate. The same is also true, for example, for 10% of the "lobby" and 12% of the "debate" stages. Although most of these de-escalation cases are relatively insignificant in the dataset, these results already indicate that conflict does not always escalate. In some circumstances it stabilizes and in others it even de-escalates. An important lesson that we learn is that while the escalation framework as discussed in Chapter 5 was initially meant to study escalation, it can also be used to investigate de-escalation.

Table 9.2 The probability of de-escalation and stabilization transitions in NRM conflict

r\t	1	2	3	4	5	6	7	8
1	0 (0)	0.22 (0.07)	0.12 (0)	0.21 (0.07)	0.14 (0)	0.19 (0)	0.12 (0)	0 (0)
2	**0.1** (0)	**0.12** (0.03)	0.12 (0)	0.13 (0.04)	0.15 (0.05)	0.13 (0.04)	0.15 (0.04)	0.09 (0)
3	0 (0)	0 (0)	**0.1** (0)	0.37 (0.1)	0.31 (0)	0.22 (0)	0 (0)	0 (0)
4	0	0	0	**0.19** (0.06)	0.2 (0.06)	0.24 (0.08)	0.26 (0.08)	0.1 (0)
5	0 (0)	0 (0)	(0)	0.14 (0)	0.16 (0.05)	0.24 (0)	0.33 (0.09)	0.15 (0)
6	0 (0)	0 (0)	0 (0)	0.25 (0)	0.15 (0)	0 (0)	0.25 (0)	0.34 (0)
7	0 (0)	0 (0)	0 (0)	0.21 (0)	0 (0)	**0.36** (0)	0.04 (0)	0.36 (0)
8	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (0)

[Note: 1 = feeling anxiety; 2 = debate and critique; 3 = lobby and persuasion; 4 = protest and campaigning; 5 = access restriction; 6 = court; 7 = intimidation; 8 = national and internationalization]

9.2 Institutionalization of conflict capability in NRM

Institutionalization of conflict capability generally refers the processes of making conflict capability become embedded within social systems or society as an established norm (Barley, 1997; Levitsky, 1998). To institutionalize conflict capability in NRM a conscious and deliberate process is needed. This process – with all the complexities associated with NRM and the widespread information asymmetry – can be quite challenging. Nevertheless, in the attempt to institutionalize conflict capability this section outlines a number of steps that may lead to achieving conflict capability. An overview of the impacts of NRM conflicts based on the empirical studies is explained first in order to critically reflect upon the constructive limits of NRM conflict. As the entire goal of conflict capability is to achieve and sustain desirable positive outcomes the exploration of constructive limits is necessary as a foundation for strategic actions to internalize conflict capability. Second, a critical reflection on the mobilization of resources to cope with NRM conflict will follow where an elaborated discussion on the types of resources and how we may mobilize them effectively are given. Finally, processes – including capacity building and intervention - and challenges associated with institutionalization of conflict capability and how conflict capability can be embedded into a governance culture of NRM are outlined.

9.2.1 Impacts of NRM conflict and the boundary constructive limits

Findings in this study were very much in line with the majority of NRM conflict studies that describe the dominance of negative consequences (see e.g. Alston et al., 2000; Castro and Nielson, 2001; Martinez-Alier, 2001; Wenban-Smith, 2001; Adams et al., 2003). On the other hand, positive consequences of NRM conflict were also observed in this study. In all studied cases, it was evident that conflict to some extent triggered stakeholders to engage in negotiation to find solutions to their problems. In Danau Sentarum National Park (Chapter 7), for example, stakeholders challenged the conception of resource boundary and the extent to which customary laws could influence resource extraction. The emerging debates over resource boundary and customary laws provided stakeholders a platform for exchanges which could potentially improve resource management. In short, the empirical cases seem to suggest that NRM conflicts have a lot of potential for learning such as how resource management can be improved and how the role and responsibility of different actors can be adequately defined (Ayling and Kelly, 1997; Walker and Daniels, 1997; Doornbos et al., 2000).

The most difficult challenge that remains is how we can define the constructive limits of NRM conflict and how we can ensure that conflict is regulated within these limits. While Glasl (1997; 1999) suggests that constructive conflict is defined specifically by the ability to reach an agreement and avoid destructive escalation levels, in NRM the delineation of constructive limits remain unknown. What can be proposed for NRM is the use of positive consequences as possible indicators of constructive conflict. Put differently, it is perhaps logical to assume that when conflict leads to a better relationship of conflict actors, improved trust and a better and equitable resource management, such conflict can be said being constructive. Furthermore, the constructive limits can also be linked to escalation levels. In inter-individual conflict the boundary between constructive and destructive conflict (i.e. the point of no return) lies at the escalation level "limited destructive blow" (Glasl, 1997; 1999). For NRM, at this stage it is rather problematic to locate this "point of no return". Nonetheless, what can be learned from the different escalation stages of NRM conflict are the potential consequences that each stage can generate (see earlier discussion). Based on the empirical case in Sumatra (Chapter 8), it can be assumed that the delineation of constructive limits would require multiple perspectives. As actors frame conflict and experience it differently based on the information and knowledge they have (e.g. Salazar and Alper, 1996; Haenn, 1999; Cantrill and Senacah, 2001), constructive limits of NRM conflict need to be cognitively defined as there may be different interpretations across stakeholder groups. What is considered destructive by one group may not necessarily be considered destructive by others. This is clearly shown by the empirical cases. For example, in the Sumatran

160

case, the killing threat and intimidation were considered harmful and destructive by the logging company but the local community felt the necessity to do so in order to prevent logging in the communal forest. Hence, both sides had different appreciation of the level of destructiveness of a particular impairing action. Another example was from the Danau Sentarum National Park (Chapter 7). The use of poison in fishing that resulted in the lengthy conflict between the *Dayaks* and *Malays* was not considered destructive by the *Dayaks* as poisoning was part of their tradition. In contrast, the *Malays* perceived this action as a serious threat. It becomes obvious that the destructive limits of conflict need to be contextualized and cognitively framed internally by disputants. Conflicting parties have certain qualities that they frame as constructive limits based on the perceived consequences of the impairing action. Additionally, the perception of outsiders such as non-disputants (e.g. researchers, off-site stakeholders) may also differ regarding the constructive limits. With all these realities, for the institutionalization of conflict capability in NRM it is presumably sufficient to strive to achieve and maintain positive consequences and to avoid destructive escalation stages. The biggest challenge is how to mobilize resources to cope with conflict effectively and to strive to maintain the conflict within its constructive limits.

9.2.2 Mobilizing resources to cope with NRM conflict effectively
It is commonly argued that there is no particular "panacea" that can assure the achievement of positive socio-political impacts of conflict (Wall and Callister, 1995; Bartos and Wehr, 2002). Addressing conflict most of the time is context-sensitive and success in using certain strategies or mechanisms in one place does not necessarily mean that such strategies can be directly applied in other contexts. Therefore, to cope with conflict effectively, the concept of conflict capability suggests that an understanding of the conflict (i.e. impairment and conflict escalation) is essential in order to have a rigorous basis to devise strategies to cope with conflict. The contextualization of conflict capability in NRM has been demonstrated at length in the preceding chapters. The next step that needs to be discussed is how the understanding of impairment and escalation can be used to achieve the desirable positive outcomes (i.e. how to ensure conflict to stay within its constructive limits) and avoid negative ones. From the studied cases, a number of clues in terms of coping with NRM conflict effectively can be derived which can be divided into two levels: policy and practical resource management level. The earlier refers to using impairment and escalation knowledge to critically assess and redefine resource policies (e.g. decentralization policies) so that they are more conducive (FAO, 2000a; FAO, 2000b; Nie, 2003). The second level can be described in terms of maximizing internal capacities of stakeholders (i.e. conflicting parties) so that they

are able to cope with conflicts adequately (Andrews and Tjosvold, 1983; Shields at al., 1999).

It was shown throughout the case studies that NRM conflict in Indonesia can be linked to the wider decentralization processes that are currently taking place at the national level. The transition from a centralistic into a decentralized mode of governance brought with it various conflicts that generally can be divided into three types of conflict: central vs. local government, community vs. community and community-company conflicts. To a large extent these conflicts were associated with the ambiguities of rules and regulations and high expectation for changes, creating a volatile political environment. Like in all cases of political transition, uncertainties about legal frameworks and the struggle for legitimacy were quite apparent in the process of decentralization and Indonesia is no exception (McCharty, 2004; Agrawal and Gupta, 2005; Nygren, 2005; Ribot et al., 2006). In this situation, stakeholders seemed to be rather opportunistic. The race for economic benefits was clearly shown in the case of West Kalimantan (Chapter 2). Local government had its own interpretation on how forests should be managed under the decentralization policies. It collected taxes and other kinds of forest levies. On the other hand, central government suggested that decentralization of forest management authority from central to local governments should be done gradually. Vertical conflicts between central and local government were unavoidable. Furthermore, the Sumatran and DSNP cases illustrated conflicts at the local level (i.e. community vs. community) as opportunities for economic benefits such as community logging emerged. For the first time they engaged in a boundary conflict, the issue that they did not consider important prior to the decentralization era. At the same time, local communities also engaged in conflict with various private companies (i.e. community vs. company) also as in the case of BRF. Forest boundary (i.e. between state and communal forest) was contested as a resource management opportunity was given to local stakeholders (see Chapter 8). Conflicts that emerged as the consequence of the transition from centralistic to decentralized resource governance as described in this book are nothing new. Similar situations occurred elsewhere (see e.g. Larson, 2002; Pacheco, 2004; Nygren, 2005; Ribot et al., 2006). Therefore, our experience in Indonesia confirms the argument put forward by authors that decentralization processes are very prone to conflict (Pacheco, 2004; Resosudarmo, 2004; Colfer and Capistrano, 2005).

Consequently, to reduce the potential for impairment under a decentralized resource governance, there is a need to mobilize political efforts to address the ambiguities of many rules and regulations. This would require a comprehensive assessment of all rules and regulations in such a way that they do not contradict each other. To achieve this objective, local and central governments must be willing to work in partnership. They are required to negotiate and redefine who has what

authorities in forest management, what roles and responsibilities both have, and how different taxes and levies will be distributed. In addition, forest management under decentralization due to its ambiguities seemed to lead to an increase of illegal logging (see Chapter 2 and 8). The weak control of the state was argued to have caused this particular problem. Consequently, government must be able to coordinate with other stakeholders, including local communities such as through co-management, to ensure that forest management is done according to sustainability principles and that illegal logging is prevented. In short, in order to avoid impairing actions and escalating NRM conflict there is a need to reassess the legal frameworks through participatory processes (e.g. Dovers 2001). The essential step would be to improve the legal framework so that it can promote harmonic relationships among community members, between community and state (Kumar and Vashisht, 2005; Gupta and Romani, 2004), and between community and company (Nawir and Santoso, 2005).

Apart from the policy level, there are many implications for practical resource management as well. The biggest question that needs critical reflection is how can we enable or stimulate stakeholders to use their capacities to cope with conflict effectively? Given the various impairments and the different levels of conflict escalation, to what extent can stakeholders maximize resources to cope with conflict effectively? And finally, under what conditions can we stimulate them to seek outside help such as from mediators or conflict facilitators? These questions clearly point to the necessity for stakeholders to have an ability to recognize and assess the conflict and subsequently address it adequately. What can be proposed is to provide opportunities for stakeholders to develop their skills to recognize impairments and escalation. In the DSNP case, for instance, it is important for stakeholders to be able to recognize the existence of different interpretations of resource boundary, customary laws and resource management regimes that cause various intra- and inter-settlement conflicts. Additionally, there are practical consequences that must be considered. For example, it is necessary to address the "unclear boundary" issue and one option to do this is probably through community mapping. Another important step to be taken is to convene regular stakeholder workshops to discuss and negotiate various conflicting issues. The most difficult thing is that in many conflict situations egotistical attitudes and hubris can prevent conflicting actors from having a constructive negotiation style (Scanzoni, 1979; Ramsbotham et al., 2005). To overcome this challenge the role of extension and capacity building is crucial (Plowman, 2005). Capacity building has the potential to improve disputants' perception of the necessity to have a constructive attitude in negotiation. Moreover, it can also improve the negotiation competency of disputants so that they can engage in a constructive negotiation. Looking back to all the empirical cases, having good

negotiation competency may improve the ability of disputants to reach agreement and find constructive solutions to their conflicts.

Furthermore, in the case of escalating conflict in particular as described in Chapter 8, it can be expected that third party intervention is required. However, what became clear from this case was that disputants seemed not to recognize the importance of intervention as proved by the absent of attempts to seek assistance from outside (e.g. mediator). Perhaps, we can agree with the argument that one of the weaknesses of disputants as argued by Glasl (1997; 1999) is that they tend not to recognize the escalation levels and how conflict can further go "downhill". Many unresolved and escalating conflicts can be attributed to the lack of timely intervention. The implication is quite straightforward. We have to continuously provide opportunities to develop the capacities of stakeholders so that they can recognize how conflict escalates and how they can prevent destructive escalation levels in time. The role of research and capacity building in this direction is important. In other words, there is a task in the future to equip stakeholders with adequate knowledge in terms of how they can examine conflict, recognize its escalation and destructive nature as well as locate resources from where they can get assistance. With all the challenges associated with the attempts to cope with NRM conflict effectively, it is very clear that the role of donor agencies is crucial to support the capacity building processes and mobilization of other resources for effective resource management.

9.2.3 Embedding conflict capability into the governance culture of NRM
Finally, it is necessary to reflect to what extent and how conflict capability can be embedded or internalized in the governance culture of NRM. As with all other attempts to change the governance culture of any social system, the institutionalization of conflict capability must be seen as a continuous and incremental process (Barley, 1997; Levitsky, 1998). Based on the discussion thus far, a critical reflection can be made regarding how this process can benefit from the delineation of constructive limits and various ways of coping with conflict effectively. Institutionalization of conflict capability may also require changes in the intervention culture.

Unless constructive limits are defined for the institutionalization of conflict capability it would be hard to imagine where the whole efforts involved in addressing conflict are directed. The delineation of constructive limits can be used as "compass" that guides us towards desirable changes and steers us away from negative ones. Institutionalization of conflict capability can be regarded as a process that is intended to establish and internalize the capacity for positive outcomes to be secured and for destructive escalation to be avoided. There are many examples of positive outcomes of NRM conflict. For example, as described by Daniels and Walker (2001) and FAO

(2000a) positive consequences of NRM conflict can be indicated by the ability to resolve conflicting issues, achieve consensus, success in delineating roles and responsibilities among stakeholders and commitment to participate in co-management. Other scholars such as Ayling and Kelly (1997) and Buckles (1999) do not only consider the outcomes but also the processes of achieving the outcomes. In other words, constructive limits can be seen also from the equitable and fair processes involved in solving the conflict.

Given the delineation of constructive limits, to institutionalize conflict capability in NRM one must consider the kinds of resources needed to promote and achieve positive outcomes and at the same time avoid destructive escalation. These resources can be described based on the need to have the ability to frame the conflict (i.e. impairment and escalation), address the conflict (i.e. coping strategies) and maintain the capability for coping with future conflict events (i.e. learning). First, to develop an ability to frame impairment and escalation there is a necessity for improving the analytical skills of stakeholders. These skills sometimes already exist within society (FAO, 2000a; Engel and Korf, 2005). For example, people have a basic understanding of conditions that can trigger conflict. Sometimes, based on experience, people have certain expectations on how conflict may develop. Nevertheless, this kind of knowledge is seldom shared equally by the members of society. Consequently, it is often necessary for having a systematic process to improve these skills such as through education and training on conflict and conflict management. Herrera and Guglielma da Passano (2006: p:1) write, "… 36 percent of the respondents learned about conflict management through experience, and 46 percent through both training and experience". It is perhaps also necessary to promote training and extension for creating the ability to frame conflict and its escalation.

Second, in terms of building the capacity to cope with conflict effectively it is clear that there is a need to internalize different competencies (see Chapter 3). For disputants to be able to engage in negotiation, for example, they have to have the knowledge and the ability to communicate effectively (i.e. communication skills), persuasive knowledge and collaborative spirit (Sebenius 1992; Buttoud and Yunusova 2002). Again, these skill-based mechanisms can be improved through capacity building. In the case where conflict can no longer be addressed through negotiation (i.e. escalating conflict), as discussed earlier other capacities are required such as mediators, arbitrators, juries, etc. The most important ability disputants need to have, is to recognize the escalation levels at which they need these outside assistances. In this regard, building the capacity of disputants to have analytical skills to assess escalation is inevitable. Finally, institutionalization of conflict capability also means being able to maintain knowledge and skills so that future conflict events can be anticipated and addressed adequately. In this respect, institutionalization of

conflict capability means developing a continuous learning platform. For example, there is a need to critically reflect upon the current conflict experience in order to build and internalize capacities for anticipating and addressing future conflict events. If all the abilities described above are systematically and continuously cultivated and used for addressing conflict, it can be said that the process of internalization of conflict capability is being applied.

In conclusion, institutionalization of conflict capability in NRM seems to require an inevitable change in the culture of conflict intervention. The obvious change is that conflict intervention should no longer be seen as a sole attempt to terminate conflict but increasingly it must be seen as an opportunity to improve the capacities of conflict actors. As argued by Peck and Hollub (1989), strategic intervention of conflict is intended to establish a long term capacity for actors to cope with conflict. In this sense, intervention can be seen as promoting a "learning culture" within which actors continuously improve their capacities and instrumental skills (Beitler, 2005; Plowman, 2005). For NRM in general, there is a need to change the overall culture from technical-oriented management to a more socio-political responsive governance culture where the relationships of actors are a central component of NRM.

9.3 Final conclusion and recommendation

This study has demonstrated that the concept of conflict capability, which originates from the social science field, is applicable in the context of NRM. It becomes clear that it differs significantly from the notion of conflict resolution. The idea of terminating conflict as a result of the overly negative connotation of conflict that is inherent in the concept of conflict resolution does not fit with the "optimistic" view of conflict and the notion of conflict as a positive force for change suggested by conflict capability. Nevertheless, conflict capability is compatible with conflict management and ADR. The main objective in conflict management and ADR (i.e. compromise and negotiated agreement) seems to be the intention to have a positive outcome of conflict, quite similar to that of conflict capability. Moreover, the intention to achieve "win-win solution" as outlined by ADR concept fits nicely with the main objective of conflict capability (i.e. to maintain conflict within its constructive limits). It also becomes obvious that conflict capability adds a deeper insight into these concepts by making a strong requirement for understanding conflict and its escalation as a robust basis for addressing the conflict.

This study also showed that a distinctive conceptualization of conflict and its escalation is possible both from the theoretical and empirical points of view. Distinguishing conflict from non-conflict situation is made possible by the

166

"impairment" in contrast to the traditional approaches that define conflict as differences or incompatibilities in interest, perception or emotion. According to the impairment model, only until after impairment is felt a conflict arises – otherwise there is no conflict. In addition to providing a clear conceptual boundary, impairment is also identifiable empirically as shown through the case studies. It becomes clear that even while differences and incompatibilities over something (e.g. perception of boundary, traditional laws) remain constant over a period of time, the perception of impairment might still change. Therefore, the use of impairment as a defining element offers a deeper insight into the conflict. Furthermore, there are other comparative advantages of the impairment model too. It allows actor relations to be taken into account as it focuses on behavior. It also allows the "sources of impairment" (i.e. underlying conditions that trigger impairing action) to be explored. With all these advantages, the impairment model provides a strategic direction for addressing the conflict.

This study demonstrated that conflict escalation in NRM can be conceptualized and empirically applied. It becomes clear that NRM conflict is complex and has many significant escalation patterns. This complexity is due to the fact that NRM conflict often involves multiple actors, diverse sources of impairment, information asymmetry and various cultural contexts. Another major conclusion that can be drawn is that high escalation conflict does not materialize within a short period of time – escalation takes place gradually. More importantly, this study is also able to identify conditions that trigger escalation as shown by the empirical case in Sumatra. It is argued that knowledge on escalation stages and conditions that trigger escalation can be used for the purpose of strategically addressing NRM conflict. Nevertheless, there are still a number of research needs that cannot be covered in this study. For example, this study has not been able to identify systematically the relationships between conflict escalation and different capacities needed to address the conflict. It has also not been able to determine the so-called "point of no return". Furthermore, there is still a need to understand the de-escalation of NRM conflict as it is not systematically addressed by this study. Further scrutiny on these subjects will advance the current findings.

A number of recommendations can be derived from the current study. First, in terms of a future research agenda, it is very important to examine the areas uncovered by this study. Exploring the systematic relationship between escalation and capacities required for addressing NRM conflict will be a key research area. For example, it is strategically important to know at what escalation stage negotiation is no longer effective and how to make use of outside assistance such as mediators or other types of third party interventions to address NRM conflict effectively. Further research to investigate "the point of no return" in NRM is also required. Knowledge on this subject can be very useful for making explicit how and at what escalation

stages external power intervention is best applied. Another important area of research is the de-escalation of NRM conflict. We need to know more systematically under what conditions NRM conflict de-escalates and why. It is imperative to comprehend the processes and techniques that can induce de-escalation and settlement of NRM conflict.

Beside further research, it is also paramount to improve our understanding of the institutionalization of conflict capability in NRM. This study has been quite successful in providing a deeper insight into NRM conflict and its escalation as well as how this knowledge can provide hints for the institutionalization of conflict capability. However, how to systematically internalize conflict capability into an embedded culture of NRM remains an interesting focus to be explored. For example, it may be useful to investigate what opportunities exist in NRM in Indonesia or elsewhere for institutionalizing conflict capability and what potential problems may hinder its achievement. More empirical work on the institutionalization of conflict capability is needed to improve our understanding of this subject. Findings in this book can be used as a starting point.

A number of political and practical implications for NRM in Indonesia in light of the current decentralization process can be formulated as well. First, it is clear that there is a need to assess all rules and regulations regarding NRM decentralization in such a way that they do not contradict each other. This is important to provide security and avoid ambiguity in terms of the implementation of decentralization. In relation to this, there is also an immediate need to define roles and responsibilities of stakeholders and how they can participate meaningfully in a decentralized NRM. For example, the role of central and local governments needs to be made explicit and transparent to avoid vertical conflict. It is also very crucial to define how stakeholders at the local level such as local communities, logging companies, or NGOs can participate constructively in a decentralized NRM. It is necessary to ensure that stakeholders at the local level give their full support to a new decentralization process and also that they are actively involved in protecting resources such as forests. Additionally, capacity building to empower stakeholders in a decentralized NRM is required to assist them toward institutionalization of conflict capability. Ideally, the capacity building process must be based on continuous and systematic efforts in order to stimulate the institutionalization of conflict capability. Depending on the context, the role of governments and donor agencies to support this process is strategically important.

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Summary

The cost and consequences of natural resource management (NRM) conflict can be extremely high. Destructive conflict is characterized by a tendency to expand and escalate. Consequently, addressing NRM conflict effectively has become one of the most challenging issues in NRM. As the conventional approaches have not been very successful in realizing constructive solutions to NRM conflicts, the notion of "conflict capability" is introduced in Chapter 1, and is described as an ability to recognize and address conflict constructively. To develop conflict capability two basic requirements must be fulfilled: an understanding of a distinctive conceptualization of conflict and of conflict escalation. In the NRM context, these requirements have not yet been systematically studied. The main objective of this study is to investigate the applicability of conflict capability in NRM and to what extent it can be systematically institutionalized.

This study uses two main approaches: a systematic theoretical analysis and empirical cases. The first approach intends to explore the concept of conflict capability by putting it on a sound theoretical footing. It critically assesses how conflict capability can be adapted to the context of NRM. It involves an extensive review and meta-synthesis of concepts, current thinking and theories. The theoretical analysis mainly intends to create a rigorous and distinctive conceptualization of conflict and its escalation in NRM. The second approach involves an empirical investigation of the proposed concepts developed during the first stage, as described above. In other words, it seeks to understand how distinctive conceptualization of conflict and its escalation can be investigated and applied, based on actual NRM conflict cases. Chapter 2 describes the context in which the empirical parts of this study were carried out. It demonstrates a typical case of forestry conflict in Indonesia during the "transition period" from a centralistic government system to a decentralized system. The chapter intends to give a general picture of the political environment in which the NRM conflicts took place over there.

Chapter 3 shows the necessity to incorporate conflict capability in relation to addressing NRM conflict. It starts by arguing that to address NRM conflict adequately, so-called conflict competency is generally required. What becomes clear from this chapter is that NRM conflicts are seldom addressed constructively. Given this fact, it is argued that it is necessary to expand the notion of conflict competency into conflict capability. The latter takes into account the distinctive conceptualization of conflict and its escalation as important elements to be understood in constructively addressing conflict. Additionally, defining escalation distinctively delineates the internal and external capacities required to address both conflict as well as the "point of no return".

Chapter 4 provides a theoretical review of and processes to develop the distinctive conceptualization of NRM conflict using the "impairment model". Conflict is defined as an experience of an actor's behavior as "impairment". Simply stated, 'unless impairment is felt there is no conflict'. Chapter 4 also discusses factors that induce such impairing behavior, referred to as "sources of impairment". Furthermore, it identifies a number of impairments commonly found in NRM, namely: restricting access, forcing objective, degrading the environment and abusing authority. The presence of these impairments distinguishes NRM conflict from other types of antecedent conditions. Factors that induce these impairments can be classified into: competing demands, eco-centrism, unclear boundary, scarcity, legal pluralism, non-compliance, and weak leadership. Chapter 5 synthesizes conflict escalation in NRM theoretically. It intends to uncover the stages of conflict escalation and to identify escalation patterns in NRM. To identify escalation patterns a Markov Chain approach is applied. A number of significant escalation stages are recognized. Furthermore, although it is possible to identify escalation patterns of NRM conflicts, there is no single "generic" pattern that fits all NRM cases. Escalation in NRM is argued to be more complex and context-dependent.

Chapters 6 and 7 focuses on the empirical investigations of distinctive characteristics of NRM conflict where the impairment framework developed in Chapter 4 is applied into real conflict situations. Chapter 6 describes the underlying causes of conflicts (i.e. source of impairment) between local people in Bulungan Research Forest (BRF) with coalmining and logging companies. Conflict between local people and mining companies was mainly triggered by water and air pollution as a result of mining activities. Conflict between local people and the logging company was triggered by the adverse impacts of logging activities to non timber forest products useful for local people. Furthermore, Chapter 7 illustrates impairments and their sources in relation to intra- and inter-settlement conflicts in Danau Sentarum National Park. The park is home to two major ethnic groups (*Dayak* and *Malay*) whose livelihoods were highly dependent on fish and forest resources. An example of inter-settlement conflicts is the use of "poisons" by the *Dayak* in fishing, which is perceived by the *Malay* as impairment because poisons killed their caged fish and all other fish along the watercourse. The main source of this conflict was differences in customary laws. In contrast to *Malay* customary law, the use of poisons is allowed by *Dayak* customary law. Intra-settlement conflict commonly found in *Dayak* and *Malay* settlements were related to unclear forest boundaries between hamlets. Chapter 8 focuses on an escalating land allocation conflict in Sumatra between a logging company and a local community. This chapter demonstrates how escalation framework, developed in Chapter 5, can be applied. The main issue in the conflict was an unclear boundary demarcation between state forest and communal forest, resulting in the opposition of local community towards

logging activity. The escalation development of the conflict is demonstrated, as well as how actors engaged in each escalation stage.

Chapter 9 provides a general discussion and conclusion based on the findings in preceding chapters. Essentially, it is argued that the contextualization of conflict capability in NRM is possible. The distinctive conceptualization of conflict and its escalation can be done both from theoretical and empirical standpoints. It is also argued that the concept of conflict capability adds substantial understating of the conflict by providing a rigorous conflict analysis. The chapter shows how knowledge on impairment and escalation can be used to manage the conflict as to stay within its constructive limits. Moreover, such knowledge identifies both processes involved in addressing conflict constructively, as well as options for embedding conflict capability in the governance culture of NRM. It is also demonstrated in this chapter that institutionalization of conflict capability essentially requires an inevitable change in the culture of conflict intervention. The obvious change is that intervention should no be longer seen as a sole attempt to terminate conflict, but rather must increasingly be seen as an opportunity to improve the capacities of conflict actors so that they can anticipate and address the conflict timely and constructively. Thus, building the capacities of conflict actors should be an ideal objective in conflict intervention. The roles of research and capacity building institutions are outlined. Finally, a number of research areas that were unable to be covered by the current study are mentioned, namely: the notion of de-escalation, the "point of no return" and a more systematic internalization of conflict capability in NRM. Further in-depth scrutiny on these areas is argued as being necessary and strategic for NRM. A number of political and practical implications are described, such as the need to assess the ambiguous laws and regulations of a decentralized resource management system and to redefine the roles and responsibilities of stakeholders.

Samenvatting (summary in Dutch)

De kosten en consequenties van conflicten rondom het beheer van natuurlijke hulpbronnen (in het Engels 'Natural Resource Management', in het vervolg afgekort tot NRM) kunnen bijzonder hoog zijn. Dergelijke conflicten kunnen namelijk escaleren en zich uitbreiden tot op een destructief niveau. Voor het beheer van natuurlijke hulpbronnen is het effectief omgaan met conflicten daarom een van de grootste uitdagingen. Aangezien conventionele benaderingen tot nu toe niet erg succesvol zijn gebleken bij het vinden van constructieve oplossingen voor NRM conflicten, zijn nieuwe benaderingen nodig. Hiertoe is in deze studie het begrip 'conflictcapaciteiten' (in het Engels 'conflict capability') geïntroduceerd; dit is omschreven als 'het vermogen conflicten te herkennen en er hier constructief mee om te gaan' (hoofdstuk 1). Om conflictcapaciteiten te ontwikkelen moet een bewust onderscheid gemaakt worden tussen de aard van het conflict enerzijds en de mate van conflictescalatie anderzijds. Tot nu toe zijn deze twee kernbegrippen in de context van het beheer van natuurlijke hulpbronnen nog niet systematisch bestudeerd. Het hoofddoel van deze studie was daarom te onderzoeken of het concept conflictcapaciteiten in het beheer van natuurlijke hulpbronnen kan worden toegepast en in welke mate dit systematisch kan worden geïnstitutionaliseerd.

Deze studie is gebaseerd op een combinatie van twee wetenschappelijke benaderingen: een systematische theoretische analyse en empirische studies van specifieke casussen. De eerste benadering had tot doel het begrip conflictcapaciteit te verkennen en vervolgens theoretisch te onderbouwen. Daarbij is kritisch gekeken naar hoe het begrip conflictcapaciteit kan worden aangepast aan de NRM context. Deze analyse omvatte een uitgebreide bespreking en metasynthese van huidige ideeën, concepten en theorieën. De analyse was gericht op een rigoureuze en onderscheidende conceptualisering van de begrippen conflict en conflictescalatie in relatie tot het beheer van natuurlijke hulpbronnen. De tweede benadering omvatte empirisch onderzoek ter toetsing van de concepten die in de eerste fase waren ontwikkeld Het doel van dit empirische onderzoek was inzicht te krijgen in hoe de begrippen conflict en conflict escalatie empirische kunnen worden onderzocht and toegepast bij bestudering van bestaande NRM gerelateerde conflicten. Hoofdstuk 2 beschreef de context van de voor dit onderzoek uitgevoerde case studies. Het hoofdstuk liet een typisch voorbeeld zien van een bosbouwconflict in Indonesië gedurende de "overgangsfase" van een centraal geleide overheid naar een gecentraliseerde overheid. Het hoofdstuk gaf een algemeen beeld van de politieke omgeving waarin conflicten rondom het beheer van natuurlijke hulpbronnen plaatsvinden.

Hoofdstuk 3 toonde de noodzaak van de ontwikkeling van conflictcapaciteiten in de omgang met NRM gerelateerde conflicten. Het hoofdstuk stelde dat zogenoemde

'conflictcompetenties' (in het Engels 'conflict competency') nodig zijn om adequaat met conflicten rondom het beheer van natuurlijke hulpbronnen om te gaan. Het hoofdstuk laat ook zien dat het effectieve beheer van NRM gerelateerde conflicten eerder uitzondering dan regel is. Verder werd betoogd dat het noodzakelijk is de notie van 'conflictcompetenties' te verbreden naar 'conflictcapaciteiten'. Dit laatste begrip houdt expliciet rekening met de specifieke karakteristieken van de twee kernbegrippen conflict en conflictescalatie, en biedt een goed uitgangspunt om constructief om te gaan met conflicten. De specifieke aandacht voor het niveau van escalatie maakt het bovendien mogelijk om een onderscheid te maken tussen interne en externe vaardigheden, die nodig zijn om conflicten en hun escalatiepunt (in het Engels 'point of no return') te herkennen.

Conflicten werden in deze studie gedefinieerd als 'het zich benadeeld voelen door het gedrag van een ander'. Als iemand zich niet benadeeld voelt, dan is er ook geen sprake van een conflict. Op basis van dit uitgangspunt is in hoofdstuk 4 een theoretisch overzicht gegeven van de processen die in deze benadering een rol spelen bij conflicten. Verschillende factoren die een gevoel van benadeling kunnen veroorzaken, zijn besproken, zoals het beperken van toegang tot hulpbronnen, het opleggen van beheerdoelen, het aantasten van het milieu en het misbruiken van macht. Deze factoren kunnen in verschillende categorieën worden ingedeeld: concurrerende vraag, eco-centrisme, onduidelijke grenzen, schaarste, plurale rechtssystemen, het niet naleven van wetten en regels en zwak leiderschap. Op basis hiervan is een 'benadelings' model (in het Engels 'impairment' model) ontwikkeld als nadere karakterisering van NRM-gerelateerde conflicten.

In hoofdstuk 5 is het begrip conflictescalatie in het beheer van natuurlijke hulpbronnen verder uitgewerkt. Het doel van dit hoofdstuk was om de verschillende fasen in conflictescalatie en de escalatiepatronen in en rondom het beheer van natuurlijke hulpbronnen nader te preciseren. Met behulp van de ketenbenadering van Markov zijn een aantal significante escalatiefases geïdentificeerd. Hoewel het mogelijk was een aantal verschillende escalatiepatronen in NRM gerelateerde conflicten te identificeren, kon er geen generiek patroon worden gevonden dat bij alle casussen paste. Escalatie in het beheer van natuurlijke hulpbronnen lijkt daarvoor te complex and te context afhankelijk te zijn.

Hoofdstuk 6 en hoofdstuk 7 richtten zich op een verdere empirische verkenning van verschillende karakteristieken van conflicten rondom het beheer van natuurlijke hulpbronnen in Indonesië. In deze hoofdstukken is het in hoofdstuk 4 ontwikkelde 'benadelings' model toegepast op bestaande conflictsituaties. Hoofdstuk 6 beschreef de onderliggende oorzaken van een conflict tussen de lokale bevolking en enkele mijnbouw- en houtkapbedrijven in het Bulungan bosgebied in Kalimantan. De conflicten tussen de lokale bevolking en mijnbouwbedrijven zijn vooral veroorzaakt door vervuiling van water en lucht als gevolg van de mijnbouwactiviteiten. Terwijl

de conflicten tussen de lokale bevolking en de houtkapbedrijven met name veroorzaakt zijn door de negatieve effecten van de houtkap op het gebruik van niet-houtige produkten door de lokale bevolking.

Hoofdstuk 7 beschreef de benadeling en de bronnen van benadeling die ten grondslag lagen aan conflicten tussen en binnen nederzettingen in het Danau Sentarum National Park op Kalimantan. In dit park wonen twee etnische bevolkingsgroepen, de Dayak en Malay, wier bestaan in grote mate afhankelijk is van vis en bos. Een voorbeeld van een conflict tussen de twee bevolkingsgroepen is het gebruik van gifstoffen bij visvangst door de Dayak. De Malay ervaren dit als een benadeling, omdat het door de Dayak gebruikte gif ook de door hun gekweekte en gevangen vissen doodt. De belangrijkste reden voor dit conflict is het verschil in traditionele gebruiken Het gebruik van gifstoffen is volgens de traditionele regelgeving van de Dayak toegestaan, terwijl de traditionele regelgeving van de Malay dit verbied. Daarnaast treden ook conflicten binnen de Dayak en de Malay bevolkingsgroepen op als gevolg van de onduidelijke dorpsgrenzen in het bos.

Hoofdstuk 8 beschreef een escalerend conflict rondom de allocatie van land tussen een houthakbedrijf en een locale gemeenschap op Sumatra. Het hoofdstuk laat zien hoe het in hoofdstuk 5 ontwikkelde escalatiemodel empirisch kan worden toegepast. De belangrijkste reden voor het conflict was de onduidelijke grens tussen het staatsbos en een dorpsbos. Dit resulteerde in tegenstand van de lokale bevolking jegens commerciële houtkap. Het voorbeeld toonde hoe het conflict langzaam escaleerde en de manier waarop de verschillende actoren in de verschillende escalatie fases betrokken waren.

Hoofdstuk 9 geeft een algemene discussie en conclusie op basis van de bevindingen uit de voorgaande hoofdstukken. De kern van de discussie en conclusie is dat het mogelijk was om het begrip conflictcapaciteiten in het beheer van natuurlijke hulpbronnen nader uit te werken. Het bleek zowel theoretisch als empirisch mogelijk een onderscheid te maken tussen twee specifieke concepten, namelijk conflict en conflictescalatie. Ook is betoogd dat het begrip conflictcapaciteiten een substantiële bijdrage levert aan het begrijpen van conflicten doordat het een zorgvuldige analyse van de aard van een conflict mogelijk maakt. Het hoofdstuk toont tenslotte hoe kennis over benadeling en escalatie bijdraagt aan: (1) het beheersen van conflicten binnen de escalatie grenzen, (2) het begrijpen van de processen die conflictbeheersing mogelijk maken en (3) het verankeren van het concept conflictcapaciteit in beleid ten aanzien van het beheer van natuurlijke hulpbronnen.

Er werd in dit hoofdstuk ook aangetoond dat institutionalisering van conflictcapaciteiten een onvermijdelijke verandering in de cultuur van conflictinterventie vereist. Een voor de hand liggende verandering is dat interventie er niet alleen op gericht moet zijn het conflict te beëindigen, maar ook moet worden

gezien als een mogelijkheid de capaciteiten van de in conflict zijnde actoren te verbeteren, zodat zij op conflicten kunnen anticiperen en hier tijdig en constructief op kunnen inspelen. Het opbouwen en ontwikkelen van de conflictcapaciteiten van deze actoren zou, idealiter, daarom ook een doelstelling van conflictinterventie moeten zijn. Het hoofdstuk geeft bovendien aan wat de rol van onderzoek en capaciteitsontwikkelende instituties hierbij zou kunnen zijn. Tenslotte gaf het hoofdstuk een overzicht van een aantal onderzoeksgebieden die niet in dit onderzoek konden worden meegenomen, zoals bijvoorbeeld het begrip 'de-escalatie', het 'escalatie punt' en de systematische internalisering van conflictcapaciteiten in het beheer van natuurlijke hulpbronnen. Een verdere verkenning van deze onderwerpen wordt gezien als noodzakelijk en strategisch voor het beheer van natuurlijke hulpbronnen. Ook zijn een aantal politieke en praktische gevolgen beschreven alsook de noodzaak onduidelijke wet- en regelgeving van gedecentraliseerd beheer van natuurlijke hulpbronnen te analyseren en de rollen en verantwoordelijkheden van betrokkenen te herdefiniëren.

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About the author

Yurdi Yasmi was born on 11 July 1974 in Sumatra, Indonesia. During high school, he was selected as one of the Indonesian students to follow an international AFS exchange program. With the AFS program, he spent over a year in Australia and followed high school at Young Technology High School in New South Wales from 1992 to 1993. Upon returning to Indonesia in 1993, he was admitted to Bogor Agricultural University (locally known as IPB, an abbreviation for *Institute Pertanian Bogor*) where he studied forestry with a specialization in socioeconomics and forest policy. While at IPB, he was selected to represent his university in a national competition for Indonesia's best university students (*Mahasiswa Teladan Nasional*) and was ultimately awarded a prize for second place. Yasmi was also actively involved in the International Forestry Students Association. From 1996 to 1997, he served as the director of the Southeast Asian Forestry Students Association and, through his position, travelled extensively, for example, to Malaysia, Thailand, Australia and Indonesia. Two days after graduating with distinction from IPB in early 1998, Yasmi received a position as researcher at the Center for International Forestry Research (CIFOR). His main research was on criteria and indicators for sustainable forest management (SFM). He was involved in developing and testing SFM in several countries and was also a member of a research team who developed a toolkit for SFM. Between 2000 and 2002, Yasmi followed the International Tropical Forestry Master Program at Wageningen University. It was during this time that he became interested in conflict management in natural resource management. In 2002, Yasmi graduated with distinction and thereafter joined CIFOR again as an Interim Program Coordinator where he assumed roles in overseeing CIFOR's international research project on Adaptive Collaborative Management of Forests (ACM), from which he gained substantial knowledge and experience about research management and other managerial skills. Yasmi was administrative coordinator of several ACM projects in Indonesia, Philippines, Nepal, Bolivia and Cameroon. He also served as research coordinator for a number of research projects such as a forestry conflict project in Indonesia and a decentralization project in West Kalimantan. In September 2003, Yasmi commenced his PhD in Wageningen and focused on conflict capability in NRM. This book is the result of his four years of research. Upon completion of his PhD, Yasmi will work for the Regional Community Forestry Training Center for Asia and the Pacific (RECOFTC) in Bangkok, Thailand.

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Selected publication

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Yasmi, Y., Colfer, C., Yuliani, L., Indriatmoko, Y and Heri, V. 2007. Conflict management approaches under unclear boundaries of the commons: Experience from Danau Senarum National Park Indonesia. *International Forestry Review* 9 (2): 597-602.

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Yasmi, Y., Schanz, H. (under review). Conflicts in natural resource management: Toward conceptual clarity. *Environmental Management*.

Yasmi, Y., Schanz, H. Colfer, C.J.P, Dennis, R. (under review). Resource use conflict in Danau Sentarum National Park: An application of impairment approach for conflict analysis. *Forest Policy and Economics*.

Yasmi, Y., Schanz, H. (under review). Analyzing conflict escalation in NRM: Lessons from forest land use conflict in Sumatra. *Land Use Policy*.

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Proceedings, Books, Book Chapter, Policy Brief, Software, Newspaper

Yasmi, Y. 2006. A new paradigm for Indonesian Forestry [Menuju Paradigma Baru Kehutanan Indonesia]. *Banjarmasin Post*, November, 2006

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Yasmi, Y. 2005. Is constructive conflict management in NRM possible? *Forest, People and Governance Bulletin* 6 (4): 4-5.

Yasmi, Y., Anshari, G.Z., Alqadrie, S., Budiarto, T., Ngusmanto, Abidin, E., Komarudin, H., McGrath, S., Zulkifli, Afifudin. 2005. The complexities of managing forest resources in post-decentralization Indonesia: a case study from Sintang District, West Kalimantan. CIFOR, Bogor. 29pp

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Prabhu, R., Haggith, M., Purnomo, H., Ritchie, B., Rizal, A., Sukadri, D., Taylor, J., **Yasmi, Y**. 2000. CIMAT (criteria and indicators modification and adaptation tool) version 2: criteria and indicators for sustainable forest management. Bogor, Indonesia, CIFOR. C&I Toolbox Series No. 3. 1 CD-ROM and 1 user manual.

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Completed training and supervision plan

Description	Department/Institute	Month/year	Credits
I. Orientation			
- Literature review and proposal writing	Wageningen University	September 2003 – February 2004	4
- CERES orientation programme	CERES	March - April 2004	5
- Presentation Tutorial	CERES	May 2004	5
- CERES Summer School 2005	CERES	June 2005	1
- CERES Summer School 2006	Wageningen University, CERES	June 2006	1
- CERES Summer School 2007	CERES	June 2007	1
- Advanced research seminar	Wageningen University, Forest and Nature Conservation Policy Groups	2003 – 2007	2
II. Research methods and techniques			
- Socio-cultural field research methods	Mansholt Institute and CERES, Wageningen University	February – March 2004	3
- Scientific writing	Language CENTA, Wageningen	May – June 2005	2
- Strategic planning in forest and nature management	Wageningen University (MSc course)	2005, 2006	4
- Policy evaluation methods	Mansholt Institute, Wageningen University	February – April 2006	4
III. Paper presentations			
- "Analysis of forestry conflict in Indonesia"	CIFOR and Forest Watch Indonesia	November 2003	2
"Adaptive co-management of community forests"	University of Amsterdam, "Globalization and Localization of NRM"	December 2003	2
- "Research that makes different for forests and people"	University of Freiburg	1 February 2005	2
- "NRM conflicts: Exploring concepts and comparing results"	CIFOR, Bogor, Indonesia	18 September 2005	2
- "Conflict management approaches under unclear boundaries of the commons"	The 11th biennial conference of IASCP, Bali, Indonesia	23 June 2006	2
Total			**42**