



Dealing with the State, the Market and NGOs



Charlotte Benneker

The impact of institutions on the constitution and performance of Community Forest Enterprises (CFE) in the lowlands of Bolivia



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Dedicated to all my colleagues and friends in Bolivia

and Peter

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Preface and acknowledgements

When opening the last cardboard boxes after moving back to Wageningen I stumbled upon some drawings that I had made as a child. Autumn leaves and an African village; nature and development cooperation. Apparently my current interests were established a long time ago. The choices I made to study in Wageningen and to move to Bolivia to work for SNV were both logical steps.

In Bolivia I have worked with several NGOs assisting indigenous communities to make use of the opportunities established by the new land and forest laws to manage and commercially profit from the forest resources around them. I was (and remain) convinced of the value of developing forest management plans for communities but quickly learned that there was more to it than organizing oneself and applying forest management regulations. The conflicts over land and resources, the political games, the power of money and the divergent beliefs and objectives of the many actors involved made me realize that managing a forest is endlessly complicated: and is more about dealing with people than about dealing with trees.

After working in Bolivia for five years I started to feel the need to deepen my knowledge about theoretical aspects of natural resource management and this led me to start a PhD study, the results of which are presented here. The thesis shows that the results of changes in land and forest legislation are generally not in line with official objectives, nor with the intentions of the many NGOs that aim to combine nature conservation objectives with poverty reduction. The results rather show the strength and dynamic nature of existing institutions which have adapted themselves to the changes in legislation. This has led to modest changes in the exchange relations between stakeholders, and has brought some benefits to farmers and indigenous people. My most important and personal objective was to show that the 'success' or 'failure' of community-based natural resource management initiatives cannot be (solely) attributed to the characteristics of the community members but depends on interaction between a multiplicity of actors and institutions within society.

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Introduction

This study deals with the development of Bolivian community forest enterprises which were been established under the framework of the 1996 Bolivian Forest Law. This law aims at the protection and sustainable use of the forest, to enable the populace access to forest resources so they can benefit from these, while respecting and adhering to regulations for sustainable forest management (BOLFOR and MDSMA 1997). This law is considered exemplary for Latin America in terms of the degree to which responsibilities and decision making on forest management have been decentralized to municipalities and devolved to rural communities (Contreras-Hermosilla and Vargas Ríos 2002; Ferroukhi et al. 2003). Now, ten years after enactment of the forest law, it is possible to analyze the extent to which the 1996 forest law actually has increased local peoples' access to forest resources and its benefits.

By 2006, 160 indigenous and farming communities had developed forest management and logging plans for commercializing timber. Most of them created Community Forest Enterprises (CFEs) to implement their management activities. It is unclear how these CFEs developed and how well they are functioning. From logging reports it is clear that many of them have halted their activities all together. It is also notable that very few communities have initiated legal forest management activities. While 160 communities might seem a reasonable number, it is only a small percentage of the total communities with access to commercially interesting forest resources.

Other communities and community members do sell timber but use logging permits that do not require any application of sustainable forest management practices. The government provides permits that allow farmers to sell timber from forest that will be converted to agricultural land under the shifting cultivation system, or to extract small amounts of timber for individual economic benefit, without having to go through the cumbersome bureaucratic procedures of approving a forest management plan. Some people also sell timber illegally, i.e. without a permit. These communities do not apply forest management practices when harvesting timber for economic benefit.

Thus, at first sight legal sustainable forest management practices seem to have only partially caught on among Bolivian forest owning communities. The purpose of this thesis is to explore the reasons for this, especially as, the policy framework was widely considered as a way of enabling local participation in sustainable forest management. The main focus of this study is to understand the factors that determined the establishment, development and functioning of the CFEs.

There are two main questions to be answered. First, why have so little communities decided to use sustainable forest management practices to benefit from timber sales? Secondly, the communities that have initiated forest management activities within the frame of the law, the CFEs, how have they developed and how do they function? This thesis initially focused on

the second question. During the process, however, it appeared that both outcomes (whether or not to apply sustainable forest management practices) are two sides of the same coin. The analysis of the institutional setting in which these CFEs operate helps clarify the development and functioning of the CFEs as well as why other communities decide to use alternative logging permits to benefit from forest products.

Community forest management systems have been extensively studied all over the world. The next part of this introduction summarises the major points of discussion within the scientific literature about these types of management systems. The final section presents the thesis outline.

1.1 Common property arrangements for natural resources

For two decades or so researchers, environmentalists and development workers concerned with sustainable forest management in tropical regions have argued that local communities that depend on forest resources for their livelihood should have the responsibility for managing these resources (Bromley 1992; Baland and Platteau 1996; Agrawal and Gibson 1999; Wiersum 1999; Arnold 2001; Arnold 2003; Bray et al. 2003; Platteau and Gaspard 2003). Forest policies have been adapted accordingly all over the world decentralizing decision making over forest use to the local level and/or devolving the rights over natural resources to local communities (Edmunds and Wollenberg 2003).

Engaging communities in resource management is now a central feature of sustainable forestry. This usually involves enabling local communities to take part in management activities and creating incentives that encourage local people to invest in forest stewardship (Richards 1997; Poffenberg 1998; Wiersum 2004). A significant body of research exists on the effect of decentralization policies at the local level (Larson 2002; Andersson 2003; Edmunds and Wollenberg 2003; Ferroukhi 2003; Andersson 2004; Agrawal and Gupta 2005; Wittman and Geisler 2005; Ribot et al. 2006). Major attention has been paid to the (legal) structural framework designed to enhance local participation in natural resource management. To explain disappointing result of decentralization in practice scholars have now started to analyse what powers have actually been decentralized to whom at the local level to understand the characteristics of successful decentralized governance systems (Agrawal and Ribot 2008).

In most cases of co-management the state maintains a strong influence over the process and this is enshrined in the legal framework. User groups must be registered in order to be recognized by the state and allowed to take over management functions (Meinzen-Dick et al. 2002). In practice approaches to community based forest management are extremely diverse with major differences in land and forest tenure and user arrangements, levels of participation, transfer

of authority, management objectives, harvesting possibilities and the role of governments and implementing agencies (Poffenberg 1990; 1998).

Most efforts to analyse the scope of community forest management have been based on theories of common property management regimes. Research in this field focused mainly on the creation of local institutional arrangements that deal with, or prevent, over and careless use of common resources (Ostrom 1999). Appropriate institutional arrangements are supposed to define a community of beneficiaries, exclude or limit access to non-owners and effectively govern access and use (Feeny et al. 1998). Ostrom (1999) dedicated substantial effort to identifying the conditions that enable resource users to design such institutional arrangements. She found resource conditions, user characteristics, institutional arrangements and the external environment to be the most relevant features. These principles have been widely used by scholars to explain the successes and failures of common property regimes (Feeny et al. 1998; Klooster 2000; Sarker and Itoh 2001; Sekher 2001; Ballabh and Ballooni 2002).

More recently Ostrom's design principles have been observed to be of limited value in understanding the influence of wider societal actors and processes on resource use (Agrawal 2001; Li 2002). Much of this research has focused on smaller groups and communities (Agrawal 2001) and on individual usage of common property resources for subsistence or small-scale market production (Antinori and Bray 2005). Some scholars now argue that all natural resource systems involve multiple direct users. For example, Adger et al. (2006) state that even when there are just a few direct users of resources, there are still, inevitably, multiple external stakeholders who make claims and calls on these natural resources at numerous scales. Virtually all resource management systems have some external linkages and drivers at different scales. This observation increases the complexity of analysis since it implies taking multiple stakeholders, operating at different scales into consideration.

Another important observation is that research on the management of collectively held natural resources departs from an assumption that institutional arrangements can be created that will guarantee sustainable resource use (Ostrom 2005). Cleaver draws attention to the fact that institutional arrangements cannot be conjured out of thin air but are the product of complicated historical processes involving interaction between societal actors. She considers that the purposeful construction of institutional arrangements to reach certain objectives (e.g. sustainable resource management) fail to recognize social complexities (Cleaver 2005).

A similar argument has been put forward by Taylor who, based on his analysis of changing agrarian laws in Mexico, argues that "the institutions of common pool resource regimes need to be approached not as static organizational structures but as historical processes in which the rules of the game are continually made and remade" (Taylor 2003: 658). He suggests considering

resource management organizations as “embedded processes in which changing structural conditions introduce opportunities and impose limitations for local action” (Taylor 2003: 646). Social agents restructure these conditions responding to opportunities and constraints in complex and creative ways. These considerations of Cleaver and Taylor are in line with North’s perspective that institutions are historically created through social interaction, through which people construct ideas about their social role and establish patterns of interaction (North 1990; 2000; 2005)).

There is now growing agreement that resource management regimes are better understood by looking at how management systems and practices are embedded in both macro and micro-level structures (Klooster 2000; Li 2002; Meinzen-Dick et al. 2002; Taylor 2003; Cleaver 2005).

New research and policy trends have also given more attention to the real and potential role of communities in commercializing timber. Most community based forest management schemes have been primarily designed to conserve the natural resource base. Harvesting from the forests has been quite restricted and mainly directed at satisfying domestic demand (Sierra et al. 1999). It is increasingly acknowledged that ‘the preservationist paradigm that focuses only on protected areas in the absence of humans is doomed unless the needs and behaviour of people with interests in resources in and around these areas are addressed’ (Schmink 2004). Following this reasoning, Wunder (2001) argues that if devolution of property rights to communities succeeded in redistributing just a small part of the rent generated by timber extraction, this would still have a very significant effect on alleviating poverty.

Richards argues that the integration of most collective management situations into the market economy is inevitable and these arrangements are left with “nothing more to do than to respond to market demand” (Richards 1997: 113). Sierra et al. (1999) claim that forest-based communities increasingly manage their resources for commercial purposes and that the satisfaction of economic goals has become an important element of resource conservation. Experiences of communities engaged in commercial timber production are now emerging from countries as Mexico, Guatemala, Bolivia, Peru and Brazil (Bray et al. 2003). In most of these Latin American countries communal forest management is concentrated on indigenous lands which contain large proportions of commercially valuable forests (McDaniel 2003b; 2003a).

Lately, Antinori and Bray (2005), Bray et al. (2003), Klooster (2000) and Antinori (2000) have published about the extensive but relatively unknown experiences of the Mexican community forest enterprises that commercially log collectively held properties. Mexico is considered one of the most progressive countries in this respect, since well over half of its forests were placed in community held hands and a significant number of community forest enterprises (an

estimated 300-400) have been founded to manage and exploit its forest resources. In general, the transition to community logging in Mexico meant a significant increase in equity, since profits from timber exploitation that formerly flowed out of the community are now used to invest in the community enterprise, generate employment, build community assets and fulfil functions left unattended by the government (Bray et al. 2003). There is a great variety in the internal organization of these newly established enterprises, and different levels of involvement in the production, transformation and commercialization of timber and other forest products (Antinori 2000; Antinori and Rausser 2000; Klooster 2000; Taylor 2000; Bray et al. 2003; Taylor 2003).

Richards (1992) observed that the relative success of the community forest enterprises in Mexico the result is of a unique combination of advantages which may not be easily replicated elsewhere. These include: the tenure basis, the organizational strength and social solidarity of the producers' organizations, the high commercial value of the forest, the ease of extraction due to the topography, market accessibility, political support, low demographic pressures and political and social stability. The importance of socio-economic and political dynamics at the local as well as the regional, national and international scale and the influence of institutions as markets and government policies are especially notable in these market-based forest management regimes (Klooster 2000).

1.2 Common property-based forest management in Bolivia

Bolivia seems to have followed the Mexican example in offering a supportive policy environment aimed at involving local actors in market based forest management. Private forest owners, small farmers, local interest groups and indigenous people have all been given the opportunity to harvest timber, albeit following government rules on sustainable forest management. Hansen and Iversen (2002) analyzed the new Bolivian forest and land laws, applying the design principles developed by Ostrom (1999) and concluded that the land and forest reforms are highly supportive to community based forest management in indigenous territories. It is generally considered that the changes in government policies have triggered the establishment of a significant number of CFEs even though they constitute only a small percentage of the existing communities (Pacheco 2001; Hansen and Iversen 2002; McDaniel 2002; 2003a; Nebel et al. 2003).

In contrast, Pacheco observed that the government has done very little to improve poor peoples' access to institutional assets such as productive infrastructure, micro-credit networks, market information and technology transfer. He argues that the regulatory system "discriminates against the poor in many ways", creating the need to seek for ad hoc solutions when laws clearly do not apply to the realities of small farmers and indigenous people (Pacheco 2001: 36). Pavez and Bojanic (1998) agree with this analysis and emphasize that while the indigenous population

may have obtained exclusive user rights to forest resources they still have to develop expensive forest management plans based on scientific knowledge (rather than traditional management practices and knowledge) in order to capitalize on those rights.

In general, traditional forest enterprises, the timber industry, forest engineers working for government agencies and part of the NGOs look sceptically at the CFEs and do not consider indigenous communities, farmers and other social actors capable of successfully engaging in commercial timber production. Nebel et al. (2003) show how the Bolivian timber market offers both opportunities and constraints to the CFEs in terms of regarding entry barriers, the bargaining power of buyers and rivalry from competitors.

Approximately 20 NGOs are involved in assisting the CFEs, providing financial support and technical assistance. Often, however, the communities have to make significant compromises to adjust to the visions and objectives of the NGOs (McDaniel 2002). Some rights-based NGOs are critical of indigenous communities involved in commercial timber exploitation since they consider this to be incompatible with traditional indigenous land use practices.

CFEs apply a number of strategies to find their niche within this broad and contradictory institutional setting. The implications of these strategies for enterprise development and performance remain unexplored, since research efforts on the development of the Bolivian CFEs have been limited. Nebel et al. (2003) provide some insights in the factors that lead to differences in the organizational structure of the CFEs and the vertical integration of the production process. They consider that communities should opt for vertical downstream integration to deal with market imperfections and integrate horizontally to obtain scale advantages. However, most CFEs are not considered to have the ability to establish the necessary external relations and competences, to overcome the barriers of high capital investment. Antinori and Rausser (2000) observed that Mexican CFEs did manage to integrate vertically and horizontally, although for reasons other than cost effectiveness.

1.3 Problem statement and research objectives

Most research has failed to recognize the influence of changing socio-economic and political conditions, historically evolved institutions and the presence of multiple stakeholders and linkages at multiple scales on the establishment and functioning of community forest management arrangements. Rather, research emphasised internal community characteristics such as groups size, leadership and organizational experience. Consequentially, when community forest based management arrangements fail to deliver the multiple objectives policy makers expected them to deliver the cause of this failure is frequently attributed to internal community characteristics. This has important consequences for future devolution and natural resource management policies. Rather than adapting the rules to the people, the

people have to adapt themselves to the rules. Increased attention is therefore paid to raise the consciousness and capacities of rural dweller to adhere to the externally defined objectives and practices of community based natural resource management. Alternatively, community based management is ruled out as a viable resource management alternative.

The call for research that looks beyond the boundaries of the communities has steadily increased over the last few years and recognizes the connectedness of rural dwellers and local communities with multiple actors and institutions at different scales is steadily increasing. This research aims to respond to that call and therefore focuses on the relations of local communities with other societal actors and the underlying institutions. The study does not only focuses on the role of the state regulations and implementations of forest policies only as most studies do that analyse the institutional environment of community based natural resource management oriented towards the fulfilment of subsistence needs (Behera and Engel 2006). As the Bolivian CFEs engage in commercial timber production also actors as well as private enterprises and NGOs and the underlying institutions influencing the patterns of interaction between them will be considered.

Moreover, another aspect to be considered is the definition of success and failure of community forest management arrangements. As Blaikie (2000) indicates, most objectives such as resource conservation, poverty alleviation and good governance have been established by external parties and have little in common with the objectives of the community members themselves. This study does not depart from pre-established ideas on how the CFEs should work and what is considered right or wrong. This means, very much against most writings on community based natural resource management, that I do not make assumptions about the importance of participation of all communities members, specific governance mechanisms, the explicit inclusion of women in decision making processes or the equal distribution of benefits from timber sales (Lund and Treue 2008). Rather I depart from the objectives formulated by the CFEs themselves and consider the process by which the CFEs develop themselves within the existing, and changing, institutional environment.

The primary objective of this research is to understand how this institutional environment has influenced the development of CFEs in Bolivia. The two main questions to be answered are: (1) how the institutional environment influences the constitution of CFEs and (2) how the institutional environment influences the functioning of CFEs. The CFEs are considered to be embedded in a wide range of institutions that exist at multiple levels of society. Interaction of the CFEs with external parties are expected to reflect the institutions that guide the behaviour of the interacting parties. This study therefore focuses on the interaction of the CFEs with other parties to clarify the observed strategies applied and the resulting patterns of behaviour.

Thesis outline

The theoretical background of this thesis as well as the research questions will be further elaborated in chapter two. This explains the use of the framework developed by the new institutional economics and the transaction costs theory to analyse the influence of the institutional environment on the CFEs, defines the concepts used and presents the theoretical framework. The methodological approach applied in this research is further explained in chapter three, which explains the use of quantitative and qualitative research methods and the methods used to collect and analyze the data. Chapter four sets out the background, including the policy changes that have taken place in Bolivia and the effect of these on the use of forest resources by the rural population in general. This chapter provides a picture of the general institutional setting where the decision whether or not to apply sustainable forest management practices takes place. Chapter five further elaborates on the specific institutional aspects the communities deal with once they have decided to engage in legally based forest management practices and analyses the consequences of these institutions for the functioning of the CFEs. Chapter six explores the contractual arrangements between the CFEs and the state, the market and NGOs and the transaction costs that the CFEs incur under these arrangements. Chapter seven uses a regression analysis to demonstrate the relation between the transaction costs incurred by the CFEs and CFE performance. Lastly in chapter eight the presented results are discussed and the overall conclusions of this study presented.

Institutions, transaction costs and forest use

2.1 Introduction

This chapter presents the theoretical underpinnings of this research. Here, the line of thought used to develop the analysis of the Bolivian Community Forest Enterprises (CFEs) will be presented in a theoretical framework and the concepts used to study the relation between theory and practice will be explained and defined. The overall objective of this research is to clarify how the institutional environment influences the constitution and functioning of CFEs in Bolivia.

Research on local resource management institutions has been especially occupied with explaining how they can be created to sustainably manage natural resources within an existing institutional environment and the characteristics of successful ones (Ostrom 1999). Another issue studied includes the influence of state policies, especially those related to decentralization and devolution, which are seen as having a great impact on the management of natural resources (Edmunds and Wollenberg 2003; Ribot 2004). Other factors studied include the effects of isolated areas becoming connected to the market (Sierra et al. 1999; Schmink 2004; Grieg-Gran et al. 2005) and the increasing interest of (western) civil society in worldwide nature conservation (Walker et al. 2007).

This research builds on the idea that the three processes mentioned above cannot be analyzed in isolation from each other. Decentralization, market integration and environmental concerns all place rural communities endowed with natural resources at the centre of international attention. Scientists, politicians and development agencies have attributed a set of (sometimes ideological) characteristics to traditional rural communities (e.g. homogeneous, inclusive and nature loving) and created theoretical paradigms that argue that participatory resource management can lead to a reduction in rural poverty, discrimination and unequal income distribution between different sections of the population, the installation of good governance systems and effective management and protection of the natural resource base (Blaikie 2000; Kellert et al. 2000). Over the last ten years or so it has become clear that traditional rural communities often do not live up to these expectations. The stumbling blocks are often considered to be that communities either lack awareness of environmental problems and/or the capacity to manage their resource base (Pagdee et al. 2006).

Having worked with rural, forest dependent, communities for several years, this conclusion appears unjustified. The author has observed community's efforts at sustainable resource management being thwarted by government officials, foresters, timber enterprises, local politicians and a range of other external actors. Communities trying to establishing a CFE in Bolivia were, at least initially, primarily engaged in a struggle to assert their rights in the face of established opinions and privileges. Many of the CFEs were assisted by NGOs, but this also entailed accepting the latter's ideological baggage, which frequently caused conflicts between

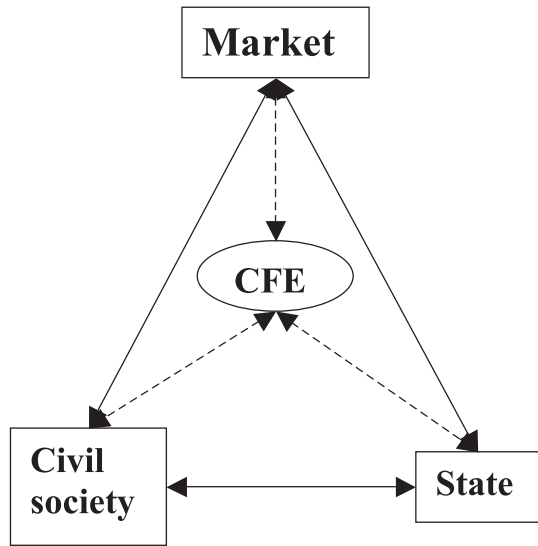
community members. Over time I moved from asking myself why people did not take the opportunity to benefit from changed legislation on forest management, to asking why those that did continued doing so, given the multiple obstacles they encountered. Andersson (2002; 2003) underwent a similar process during his PhD study. He started his research asking why municipalities in Bolivia did not implement forest decentralization policies but concluded by arguing that: "It is more difficult to explain how some Bolivian municipal actors have been able to overcome the difficult institutional conditions to provide and produce relatively effective services in the sector" (Andersson 2004: 245).

Research in this field has generally paid very little attention to the dynamic processes through which policies are renegotiated and redefined through interactions between numerous stakeholders at all levels of society (Berkes 2001; Carlsson and Berkes 2005; Adger et al. 2006). As Parto (2005) argues, policy implementation is not a linear process that merely involves definition and implementation but is affected by the inter-relationships between organizations and institutions at different spatial scales. For example, Nygren (2005) has drawn attention to the dynamic environment in which decentralization policies were negotiated and implemented in Honduras and argues that: "the use of natural resources is mediated by a set of interacting and overlapping institutions, both formal and informal. These institutions, operating on multiple scales, shape the patterns of resource management and progressively modify the political landscape over time" (Nygren 2005: 640). This research aims to show how the new forest law in Bolivia has been (re)negotiated at the local level through formal and informal institutions, whose interactions have shaped forest use by rural communities. More specifically, the objective is to clarify how Bolivian CFEs became established and developed within this dynamic, multi-actor and multi-level, 'playing field' involving a range of stakeholders, organizations and institutions.

CFEs need to deal with a wide range of external actors, including state officials and local elites, shop holders and teachers, forest professionals and national and international NGO personnel, forest enterprises and intermediaries, banks and private money lenders, and a range of others. Broadly speaking these actors can be divided in three main categories, state, market and civil society. All actors, organizations and institutions within these three broad categories interact with each other as well as with the CFEs. Figure 2.1 shows the general configuration of relationships between these categories.

The relationship between institutions and human (including economic) activity has captured the interest of economists, political scientists and sociologists since the late nineteenth century and has lately attracted increased attention in the social sciences (Scott 2001). In economics renewed interest in institutions has resulted in the development of New Institutional Economics (NIE) (Parto 2005) in which the works of North and Williamson are often considered as leading examples (Williamson 1994; 1998; 1999; North 1990; 2000; 2005; Williamson 2002).

Figure 2.1 Relationship between the CFEs, state, market and civil society.



North pays particular attention to the influence of the institutional environment on economic performance. One aspect of NIE that sets it apart from other scientific disciplines that analyse institutions, is that it has developed a specialized theoretical framework, the transaction costs theory, for analyzing economic development and the performance of enterprises. While developed by economists, this concept has been widely applied by sociologists, geographers, anthropologists and social economists (Ensminger 1994; Smelser and Swedberg 1994; Scott 2001; Parto 2005).

This study will follow the theoretical arguments developed by the new institutional economists, doing so for three main reasons. First, institutional economists have focused on studying the links between the institutional environment and performance of enterprises. The economic approach to institutions therefore seems more appropriate for analyzing the functioning of Bolivian CFEs than more sociological or political approaches to institutional analysis that, respectively, focus more on the development of social relations at the individual level and political relations at the macro level. Second, NIE adheres to an historical approach to the formation of institutions, which occurs through interactions between multiple actors. The dynamic nature and long term perspective of this approach are useful in explaining the constitution and functioning of CFEs. Third, some of the underlying theoretical assumptions from transaction costs theory, such as bounded rationality and enterprise efficiency, which might have been difficult to apply in a rural developmental context, have been adapted by sociologists and anthropologists who use them in a broader and more flexible way. For example, they acknowledge that people may be driven by objectives other than profit maximization (Argyres and Porter Liebeskind 1999) and have loosened the definition of (bounded) rationality

(Buitelaar 2007). This has allowed greater flexibility in the application of the transaction costs concept. As such transaction costs, or the cost of doing business, can now be measured and analyzed without some of the earlier assumptions about their origin or effect.

While this study follows a fairly conventional path in analysing common property management through the theoretical prism of new institutional economics, it disassociates itself from some commonly used ideas about the nature of common property management. These include the assumption that 'community' is a homogeneous unity, that 'decentralization' is a panacea and that 'participation' is a sine-qua-non for local resource management (Blaikie 2006). Rather the study views CFEs as one possible way in which rural communities can organize commercial timber production that may co-exist with other forms of organization. Moreover the study assumes that CFEs are likely to consolidate themselves over time as a result of constant negotiations and renegotiations with the multiple actors they have to deal with (see also: Beck 2000).

2.2 Conceptual framework and research questions

This section firstly presents the conceptual framework, showing the key theoretical concepts employed and the relations between them. This is intended to help the reader to understand the significance and position of the individual concepts (presented later) and the relations between them. Subsequently, the theoretical underpinnings of New Institutional Economics and transaction costs theory will be elaborated, specifically highlighting how the later can be applied to analyze problems in natural resource management. As this research not only analyzes market transactions but also transactions with the state and civil society actors, some examples are given of how other researchers have applied and adapted the main concepts of transaction costs theory to non-market transactions. Finally this section discusses the specific activities undertaken by CFEs in order to interact and exchange products with other parties, which are referred to as transactional activities.

Figure 2.2 shows the concepts used to outline the relations between the institutional environment and the performance of CFEs. The transaction costs concept is used to analyze the interactions and resulting contractual arrangements between CFEs and parties with which they interact. CFEs mostly interact with: (1) the Forest Service¹ (FS), (2) timber buyers and (3) local and international NGOs (see arrow 1). The Forest Service is the forest state agency that regulates and monitors forest use. CFEs initially have to develop a forest management plan to obtain the right to manage their forest for commercial purposes. After that they have to provide annual logging plans and reports, pay taxes and obtain transport permits. Interaction with the FS is thus largely bureaucratic in nature and requires high initial sunk investments.

1 In Bolivia this is called the Superintendencia Forestal, which is freely translated as Forest Service.

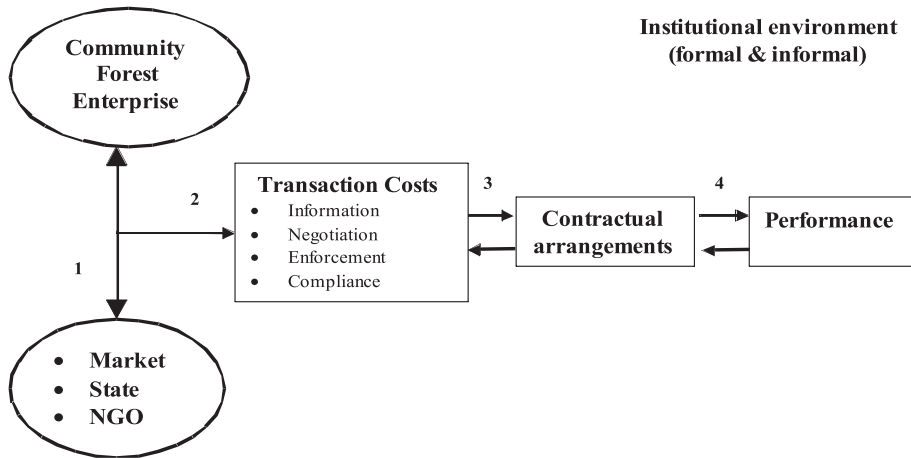


Figure 2.2 Transaction costs, contractual arrangements and CFE performance as a result of interaction between CFEs and state, market and NGOs within a given institutional environment

The arrangements between the CFEs and the state are conceptualized as contracts because the state and the CFEs enter in an agreement which define mutual rights and obligations (see also (Behera and Engel 2006)). CFEs interact with timber buyers to sell their products, but this interaction seldom takes place at the spot market. Timber buyers often make specific investments in the CFEs in order to have access to their timber. Contracts are constantly renegotiated and opportunistic behaviour is rampant. NGOs have made significant investments in elaborating forest management plans so as to promote communities' participation in legal and sustainable forest management practices. Their objectives range from empowerment, to poverty alleviation, to nature conservation. Not all CFEs are in receipt of assistances from NGOs as the presence of NGOs is regional and patchy. The arrangements between CFEs and NGOs are also conceptualized as contracts (Posnett and Sandler 1988) as both parties agree on assuming rights and obligations towards each other. CFEs also interact with other stakeholders but these three parties are the most influential.

The interactions between the parties will be analyzed through assessing the transaction costs that occur during the interactions (see arrow 2). The transactions are therefore the prime unit of analysis. Transaction costs are considered as the cost of doing business. They include the costs of: searching and gathering information, negotiating a contract or agreement, monitoring and enforcing the agreement and complying with the agreement. These four elements are considered separately when assessing the interactions between the CFEs and their main partners.

Transaction costs are considered to provide a useful indicator of the degree to which the institutional environment enables or obstructs certain interactions and are lower in an

enabling environment. For example, in one region with several CFEs, government officials have noted that the CFEs comply strictly with the technical regulations on forest management. Whenever the CFEs in this region need to fulfil bureaucratic procedures, government officials are prepared to assist them. This reduces the transaction costs of the CFEs, compared to other regions, where CFEs might be asked to wait or to redo a procedure due to a mistake or lack of information.

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The contractual arrangements established between the different parties may be agreed upon verbally or formalized in written contracts (see arrow 3). Following transaction costs theory, these contractual arrangements are designed in a way that minimizes resource expenditure. This is in line with neoclassical economical thinking which holds that enterprises will try to maximize profit and to minimize production and transaction costs. One CFE, for example, decided not to sell timber to a large forestry enterprise located over 2000 km away from the community, because the enforcement costs would be prohibitively high. Although local timber buyers paid less for the timber, the CFE managers could easily locate them to enforce payments when necessary. When the transaction costs of interacting with a certain party are too high, transactions may simply not take place. These contracts or arrangements between parties are also referred to as governance structures or institutional arrangements in the economic literature (North 1990; Williamson 2002). The governance structures refer to the 'play of the game' (Sandler 2001). The governance structures are thus defined as arrangements between economic units that govern the way in which these units cooperate and/or compete (Williamson 1994).

The type of the contractual arrangements established between the CFEs and their exchange partners and the amount of transaction costs involved in these arrangements are considered as co-determinants of the performance of the CFEs (see arrow 4). It is not assumed that transaction costs are the only factor determining enterprises' performance. Production costs and other environmental characteristics may be other important elements, but are not dealt with in this study whose objective is to analyze the effect of the institutional environment on enterprise performance, rather than of other influences.

Enterprise performance is generally considered to be a difficult concept to measure, as financial information is not always available and the objective of enterprises is not necessarily always that of profit maximization. Here four simple measurements of performance have been adopted, that measure the volume of timber production, the continuity of production activities, the capacity of CFE to negotiate with the market over timber prices and the satisfaction of the CFE's managers with the functioning of their enterprise (Ketokivi and Schroeder 2004).

The model adopted here considers that all the interactions between stakeholders (actors and organizations) to take place within and are guided by the institutional environment. North (1990) defines the institutional environment as: the set of fundamental political, social and legal ground rules that establishes the basis for production, exchange and distribution. Examples of such institutions are the rules governing elections, property rights, the rights of contracts, norms, customs and conventions. Rather than trying to unravel all the complex and largely invisible components of the institutional environment this study analyzes the ways in which people interact and uses this information to deduce the important components of the institutional environment that influence CFEs' performance. For example, private timber enterprises in Bolivia that never used to buy timber from the CFEs, suddenly started offering the CFEs attractive long term contracts. The possible, institutional, explanation for this is that the Bolivian President proposed abolishing the forest concessions that these enterprises hold. This would deprive them of a secure source of timber for processing and turned the CFEs into an interesting alternative provider. A simple rumour was able to change the business relation between private enterprises and the CFEs.

The overall objective of this research is to determine whether and how the institutional environment influences the constitution and functioning of the Bolivian CFEs. Several sub-questions have been formulated to get a complete picture.

1. How have changes in land and forest legislation influenced forest use by local people in Bolivia and how have these changes lead to the emergence of CFEs?
2. What contractual arrangements do the Bolivian CFEs enter into and for what reasons?
3. How can the contractual arrangements between the CFEs and their exchange partners be characterized in terms of transaction costs? Are they cost effective, as predicted by transaction cost theory? And how do these costs relate to the institutional environment?
4. How do transaction costs influence the performance of CFEs?

A few remarks should be made here:

- The term community is used to refer to a location. No assumptions are made about the homogeneity of the composition of such a community. In reality, communities in Bolivia generally consist of people from different ethnic backgrounds who occupy different economic and political positions, even in the most isolated and mostly indigenous communities. The internal organization of the CFEs differs between each community and reflects their different characters.
- No attempt is made to focus on institutional aspects that guide decision making by individuals within communities or CFEs. There is no analysis of how the community is organized internally, who participates and who decides and how the revenues from timber sales are distributed between the community members (see also: Behera and Engel 2006).

2.3 New Institutional Economics and transaction costs theory

New Institutional Economics (NIE) provides a new social scientific approach for describing how institutions are generated and how they affect levels of productivity and exchange. Whereas the 'old' institutional approach applied a predominantly historical approach to explain the evolution of institutions, NIE stresses the effect that institutions have on economic performance. Well known 'old' institutionalists include Veblen, Commons and Simon. Their influence on the new institutional economists has been limited (Hodgson 1998).

New institutional economists, especially North and Williamson, opposed the neo-classical assumption that free markets are always the most efficient arena for economic activity (Campbell 2004). North (2000) argued that any society, economy or polity is structured and the structure is a person-made function of the way in which we order the society. Economic performance and firms are therefore not only affected by their technological and economic environments but also by their institutional context (Campbell 2004).

The efficiency of transactions between actors in society reflects the opportunities and costs that institutions have created. This means that the costs of transactions within a society are a reflection and an indication of the degree to which the institutional matrix in society enables or restrains certain groups or activities. North argues that the first requirement for improving economic performance is to have a clear understanding of the sources of economic performance. Information on the cost of transacting can be used to trace back the sources of poor performance to their origins in the institutional/organizational structures (North 2005).

The institutional matrix consists of both formal and informal institutions that have developed over time. The processes by which formal and informal institutions are created are not necessarily the same and not all institutions are equally visible in society. Formal and informal institutions often coexist with one another, sometimes supporting each other and sometimes

in opposition to one another. Informal institutions can, for example, also define the extent to which the formal rules are applied and enforced. Not all institutions created the same kind of incentives in society. Moreover, the institutional matrix affecting decision making may differ for different stakeholders in society. For example, actors with access to political and economic decision making may seek to change the institutional setting to favour their own interests, whereas less powerful actors may rather accept or evade certain rules. The way that society perceives the rules of the game depends on the way that these rules are enforced.

Two key aspects of the NIE framework are: (1) the distinction between institutions and organizations and (2) the concept of bounded rationality. Institutions are seen as basic structural elements (for example property rights, contract law, central banking and governments) that govern (constrain and guide) relationships between people. These have long run implications for levels of growth and economic performance (Williamson 1994). Organizations, by contrast are groups that come into being within this institutional framework, to 'win the game', or achieve a set objectives (North 1990). Organizations are created in response to the existing sets of opportunities and constraints (institutional and economic ones) to accomplish defined objectives. The relations between people in these organizations and between organizations are defined or constrained by the institutions (i.e. the rules). Institutions are therefore the rules that define interaction and competition; and organizations are the units formed in accordance with these rules (North 1990).

Contrary to neo-classical assumptions about human behaviour that expect people to make rational, i.e. profit maximizing, decisions, NIE starts from the idea that human beings have bounded rationality, since they have a limited capacity to collect and process information and make well informed decisions. This idea of 'bounded rationality' originates from behavioural economics and is based on the acknowledgement that cognitive structures, belief systems and other sorts of ideas all influence how actors perceive their interests and form their opinions (Campbell 2004). Simon (1982) for example, considers that humans are generally not irrational or random in behaviour, they use whatever reasoning power that is available but know that they cannot be substantively rational in the sense of considering everything. This thesis accepts the idea that people have reasons to take certain decisions. Without elaborating on where these reasons or ideas come from, it is important to recognize that they do not have to be necessarily economic in character.

Within the field of new institutional economics, Williamson (2000) distinguished four levels of social analysis (see table 2.1). The top level is that of social embeddedness; where social norms, customs, mores and traditions are located. Institutions at this level are informal, have deep-rooted but largely unwritten origins, which only change slowly and can have either a functional or symbolic value. This level is mostly dealt with by social scientists and economic historians, and most new institutional economists take it as a given. The second level is the institutional

environment level. Here the formal rules (“rules of the game”) are situated, those that have mainly resulted from evolutionary processes and sometimes of broad reform (e.g. after a crisis, breakdown, war or occupation). This level includes the executive, legislative, judicial and bureaucratic functions of the government. The definition and enforcement of property rights takes place at this level, as well as part of the research on the origin of institutions. The third level locates the institutions of governance, such as contractual relations, the “play of the game”. This is the focus of transaction cost economics that analyze the transactions and the governance structures that result from the effort to craft order, reduce conflicts and realize mutual gains. The fourth level is the level at which neoclassical economic analysis works, describing the firm as a production function.

NIE has developed two complementary approaches that differ in the attention that they give to the origin of institutions. The first approach can be referred to as the historical approach; led by Douglas North, the second approach is the transaction costs theory; led by Coase and Williamson (Scott 2001; Acheson 2002).

The historical approach of Douglas North is concerned with the rules and governance systems that are developed to regulate or manage economic exchanges. North argues that the kind of organizations that come into existence and the way they evolve depend on the framework of

Table 2.1 Economics of institutions

Level	Frequency (years)	Purpose Often non-calculative;
L1	Embeddedness: informal institutions, customs, traditions, norms, religion ↓ ↑	spontaneous
L2	Institutional environment: formal rules of the game – esp. property (polity, judiciary, bureaucracy) ↓ ↑	Get the institutional environment right. 1st order economizing
L3	Governance: play of the game – esp. contract (aligning governance structures with transactions) ↓ ↑	Get the governance structures right. 2nd order economizing
L4	Resource allocation and employment (prices and quantities; incentive alignment)	Get the marginal conditions right. 3rd order economizing
L1: social theory L2: economics of property rights/positive political theory L3: transaction costs economics L4: neoclassical economics/agency theory		

Source: Williamson (2000)

formal and informal institutions, arguing that the opportunities for economic organizations and society depend on the development of institutions (North 1990; 2000; 2005). North treats transaction costs as dependent variables; subject to the effects of wider institutional frameworks and therefore indicators of the degree to which the institutional environment enables transactions.

Transaction cost economics (Scott 2001) deals with the mechanisms of governance referred to as institutional arrangements. These are defined as the arrangements between economic units that govern the way in which these units cooperate and/or compete (Williamson 1994). Transaction cost economics does not ask how institutions come about, but simply accepts that they exist, and then asks how business people use them as building blocks to create organizations (Acheson 2002).

Transaction costs economists argue that governance structures are the result of activities designed to minimize transaction costs. Coase (1937) wondered why firms exist at all, if all transactions could be carried out on the market. He explained the existence of the firm by arguing that it was cheaper to carry out some transactions within a firm than through the market, thereby defining transaction costs as the costs of using the market system. Williamson (1998), later argued that the existence of spot markets, long term contracts and hierarchy (vertical integration) can be explained by the degree of bilateral dependency. When parties do not make specific investments and do not depend on each other they will use spot markets, when specific investments are made, interactions will be arranged through long term contracts and when dependency grows enterprises find it preferable to integrate the activity within their own enterprises rather than exchange it upon the market.

Transaction costs theory accepts the idea that people may purposefully act in an opportunistic way so as to appropriate a larger part of the rent generated in a transaction (Williamson 1994). Opportunism refers to incomplete or distorted disclosure of information, and especially to calculated efforts to mislead, distort, disguise, obfuscate or otherwise confuse other parties. Contractual specifications are often inevitably incomplete in relation to the specific performance requirements of the involved parties, which may vary according to various known and unknown contingencies. This incomplete character of contracts creates the basis for opportunism, both pre-contractual as post contractual. Accordingly, strategic incompleteness of contracts may be a deliberate method adopted by one or more parties in the initial stage of drawing up a contract. The prospect of ex-post negotiations can also influence choices at this initial stage. In general opportunism increases transaction costs (Rao 2003).

Transaction costs theory is still evolving and other researchers have added several additional explanations for the co-existence of different types of governance systems. Argyres and Liebeskind (1999), for example, argue that enterprises might not always be able to switch to

more efficient forms of governance because of governance inseparability, which they define as a condition in which a firm's past governance choices significantly influence the range and types of governance mechanisms that it can adopt in the future. The idea of past decisions influencing possible future choices has been conceptualized as path dependency. This concept has been widely used to explain how, even small and apparently insignificant, decisions made in the past can have major consequences for economic organization in the future. When the costs of changing to a system that is known to be more efficient are too high, the economy is said to have "locked-in" past decisions (Liebowitz and Margolis 1995).

2.4 The use of transaction costs in natural resource management

Besides the analysis of governance arrangements in the market, economists, economic anthropologists and sociologists have used the transaction costs approach to analyze a wide variety of non-market transactions. They argue that almost every transaction entails costs and benefits to the transacting parties (Rao 2003). The transaction costs approach has therefore been applied to analyzing all kinds of structure-agency relations (Buitelaar 2007) and even social processes in general (Eshuis 2006). These researchers have broadened the theoretical assumptions that enterprises search for the governance structures that minimize transaction costs and that transaction costs induce institutional change. As a result more attention is given to the role of different types and magnitudes of transaction costs in resource allocation and production (Rao 2003).

In addition to market-based transaction costs, we can also distinguish administrative and/or managerial and political transaction costs (Rao 2003). Market transaction costs consist mainly of the cost of doing business, managerial transaction costs (or internal organization costs) consist of the costs of setting up and operating an organization. Political transaction costs are not defined specifically and need to be specified in terms of system characteristics. Figure 2.3 shows that these different categories of transaction costs can also be represented as a set of costs of broader institutional configurations, within which other institutions and organizations exist (Rao 2003). In analyzing institutional arrangements in natural resource management, researchers have mainly considered political and organizational transaction costs. The political transaction costs relate to the overall implementation costs of different governance structures to regulate the use and protection of natural resources (Kuperan et al. 1998; Birner and Wittmer 2000; Brennan 2002). Kuperan compared the costs of centralized and decentralized natural resource management systems to identify the most efficient institutional arrangement. Birner and Wittmer use the transaction costs approach to assess the efficiency of pure state, private and collective natural resource governance structures and three hybrid structures. All the authors argued that the theoretical analysis of the possible transaction costs associated with different governance arrangements sheds light on the characteristics of the different sectors and is useful in assessing the appropriateness of specific arrangements.

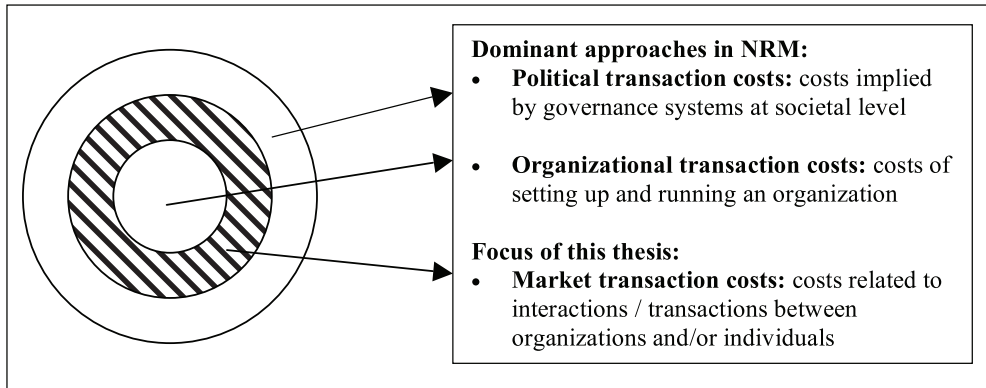


Figure 2.3 Levels of transaction costs.

However the assumption behind such studies that it is possible to identify a ‘most efficient’ governance system has been subject to criticism from theorists who consider institutions to be the product of complicated historical processes that involve the interaction of societal actors, rather than something that can be instantly created (or changed) (Cleaver 2005). However, the analysis of governance structures at societal level can provide insight in the costs implied by certain arrangements and possible recognition that excessively high costs might prevent the implementation of resource management arrangements (McCann et al. 2005).

The organization approach has been widely applied by a number of researchers, including, Adhikari and Lovett (2006), Mburu et al. (2003) and Misra and Kant (2004), who have analyzed the cost of setting up and operating collective, or community, resource management organizations. All these studies have analyzed different types of costs. Adhikari and Lovett included the costs of finding group members, reaching an agreement, setting up the group, finding information about the resource and capacity building. Mburu analyzed the (ex-ante) costs to establish the resource management organization such as information gathering, bargaining, decision making and contracting costs and the (ex-post) costs to run the organization such as meetings, monitoring activities, conflict resolution and contract enforcement. These different studies aimed to discover if transaction costs influence the functioning of the management of these organizations and the participation of community members in the management structure. The results were ambiguous however. Whereas Misra and Kant concluded that transaction costs did significantly affect the functioning of Indian forest user groups, Mburu et al. found that the Kenyan wildlife management organization incurred hardly any transaction costs.

Personal experience with CFEs in Bolivia makes it seem unlikely that the functioning of community based natural resource management systems can be explained solely in terms of organizational costs. The studies mentioned above do not pay sufficient attention to the broader institutional setting in which community organizations are embedded. Community

organizations have to follow government regulations but also seek to negotiate them. They must interact with the market, and often get 'assistance' from NGOs. As Adger et al. (2006) already argued: "even when direct users of resources are small in number or strictly limited, there are inevitable multiple external stakeholders making claims and calls on natural resources at numerous scales" (Adger et al. 2006: 9). The same authors maintain that transaction costs stemming from interactions between regulators and resource users can be significant. In the same vein Vermeulen and Mayers (2007) found that transaction costs between communities and private enterprises are a key constraint in company-community partnerships.

It is fully recognized that the magnitude of the political transaction costs associated with specific governance systems is an important consideration for policy makers. It is also recognized that the internal or organizational transaction costs are likely to influence decision making and the functioning of community organizations. These two aspects will, however not be elaborated upon in this research. To further our understanding of the functioning of community based management organizations it seems important to focus on another level of analysis i.e. the level where interactions occur between stakeholders, giving rise to additional transaction costs. This study will therefore focus on the 'market approach' to transaction costs, that is to say, on the level where the costs associated with interactions between organizations and/or individuals occur. As mentioned before, this market approach will not only be applied to analyze interactions between CFEs and the market but also the interactions between CFEs and the state and with NGOs. This 'market approach' to transaction costs recognizes that all stakeholders making claims and calls on natural resources (Adger et al. 2006) operate within an institutional setting, that has developed over time and reflects historically defined relationships between people.

For Bolivian CFEs, and probably for all rural community based resource management initiatives, this consideration is important, as the interests of poor rural and indigenous people have often been subordinated to the interests of more powerful and resource-rich economic and political elites (see also: Behera and Engel 2006). Changing regulations cannot be expected to immediately change local practices, but they can generate processes of renegotiation by changing legal access to resources (Nygren 2005). Whereas Mburu et al (2003) and Adhikari and Lovett (2006) emphasized the initial costs of setting up a community based resource organization (thereby implicitly assuming that the operational costs will be negligible), here the establishment of co-management arrangements are recognized as giving rise to a process of renegotiation of power relations between stakeholders. The establishment of local management organizations should therefore be seen as a starting point of a problem solving process, rather than an objective in itself. Many of the transaction costs that community organizations face during the initial phase will reappear as the stakeholders (community members as well as external actors) constantly engage in renegotiations (Carlsson and Berkes 2005). Since the management arrangements evolve, the transaction costs of setting up or re-negotiating the

arrangement, are recurrent. But, as actors learn from their experience, the magnitude of these transaction costs might also decline over time.

In this sense then, this study is not only about how the change in Bolivian forest policy has affected local people's forest use, but also how people have managed to negotiate the legal rights established by the new forest law at the local level. This process of negotiation is assumed to have taken place among numerous stakeholders, and not only, as frequently assumed, between the CFEs and the state. All these stakeholders bring their specific interests and resources. Several researchers have referred to the costs incurred by different stakeholders in such a process of negotiating established right as 'transition costs'. However this concept implicitly assumes a situation where a deliberate change is taking place, for example from a planned to a market economy (Pejovich 2003). While Bolivian society certainly is in a continuous state of change, the time period covered by this study, less than ten years, might not be sufficient to talk about the transaction costs incurred as transition costs. This concept therefore is not further developed in this study.

2.5 CFEs, exchange partners and contested resource use

It has been argued that almost every transaction entails costs and benefits to the transacting parties (Rao 2003). The characteristics of the transactions may, however, differ considerably between different types of parties. For example, when interacting with state officers, CFEs have to deal with differences in authority (Eshuis 2006), when dealing with NGOs, they have to maintain good relations to keep their assistance (Posnett and Sandler 1988) and when interacting with timber buyers they have to be wary of opportunistic behaviour. This section briefly discusses the specific characteristics of CFEs interactions with different parties that generate transaction costs.

2.5.1 Market interactions

Much of transaction costs related literature describes the sources and processes by which transaction costs are generated in market interactions. Most of these processes have been mentioned in the preceding two sections and only the most important processes are discussed here.

One important issue in market transactions is uncertainty. Some aspects cannot be known before signing the contract. Uncertainty can arise from informational uncertainty and informational complexity; not knowing and not able to know (Rao 2003). There can be uncertainty about the state or nature of things (for example the quality of timber) and about the behaviour of the other party (can he/she be trusted? Will he/she pay?). Uncertainty influences far-sightedness, especially in forestry (Hoogstra 2008), and limits the ability of enterprises to adapt contractual arrangements to meet unforeseen contingencies (Rao 2003).

When enterprises engage in relationship-specific investments that cannot be redeployed to alternative uses at reasonable cost (Rao 2003), the other party can engage in opportunistic behaviour to appropriate part of the rent. Enterprises have to engage in transactional activities to reduce the chances, or effects, of such opportunistic behaviour.

This problem, of ensuring contract compliance by the other party, is also called the 'hold-up' problem. Although ex-ante there may be many suppliers and buyers, once specific investments have been made it is the absence of ex-post competition that raises the possibility of hold-up since one party may have an incentive to appropriate the gains associated with the other party's investment (Maher 1997). One way of insuring against opportunistic behaviour is through designing complete contracts. These contracts must guarantee ex-post that parties earn a fair return on their investment in order to promote ex-ante specific investments. However the drawing up of complete contracts is not feasible due to high specification costs. As public institutions in developing countries are often absent or ineffective in ensuring contract enforcement (Gow et al. 2000), enterprises apply a wide range of alternative, private, enforcement mechanisms to overcome the hold-up problem. One of such mechanism is the establishment of the so-called relational contracts in which building trust is used to prevent opportunistic behaviour (Artz and Brush 2000; Muller and Turner 2005; Woolthuis et al. 2005). Contract length is another aspect related to asset specificity, whereby commitments are made ex-ante over a longer time, but allow for repeated renegotiations over time (Joskow 1987). The possibility of leaving contracts more open, rather than trying to pre-define all aspects ex-ante, is another mechanisms that has been discussed by Wernerfelt (2007) and Segal (1999). If the cost of enforcing the contract is too high, enterprises may prefer to internalize the production of a product or service that they would otherwise obtain from the market. Thus, vertical integration is another way of resolving the hold-up problem.

Bolivian CFEs face a wide variety of hold-up problems. Although they are the owners of the forest resources (i.e. timber) they do not have the capital to exploit these resources and therefore are heavily reliant on third party investments. The investors are mainly NGOs and private enterprises. Both these parties not only invest capital but also provide additional good and services to the CFEs, which strengthens the dependency relation. Whereas CFEs might want to assume certain aspects of the production process to lower their dependency on the market, they do not have the capital to purchase the equipment to do so. The contracts between the CFEs and the timber buyers are therefore highly complex and include a variety of products and services. Moreover, transactions take place in a situation in which the relations between the timber buyers and communities were established before the new forest law was enacted. Thus the previously existing institutional arrangements influence the establishment of 'new' contractual arrangements.

Table 2.2 indicates some of the transaction costs faced by the CFEs in their interactions with timber buyers. Hold-up problems cause delays in harvesting, selective harvesting, delayed

Table 2.2 Examples of transaction costs generated by the transactions between timber buyers and CFEs

Transaction costs with timber buyers	
Information costs	<ul style="list-style-type: none"> • Finding timber buyer with logging equipment • Finding information on timber prices • Finding information on assets and reputation of buyer • Finding funds to initiate harvesting next year
Negotiation costs	<ul style="list-style-type: none"> • Negotiation over contractual conditions and prices • Negotiation over starting date of logging and progress • Additional operational costs due to lack of progress • Negotiation over selective logging activities timber buyers (only prime quality timber) • Renegotiation of prices after delivery • Renegotiation of volumes of harvested timber through alternative measuring methods • Problem solving with buyer
Enforcement costs	<ul style="list-style-type: none"> • Following and harassing buyers to pay • Non- and partial payments • Payments in small amounts • No interest over delayed payments • No payments for non-extracted timber • In case of conflict dissolve contract and start again
Compliance costs	<ul style="list-style-type: none"> • Elaborated logging plan • Organize logging activities • Motivate community when problems with timber buyers exist

payments and non-payments. In some cases both the prices and techniques for measuring volume are renegotiated upon delivery. Previous investments made in elaborating the contract and reaching internal agreement are lost and additional costs may have to be made in establishing a contract with another buyer.

2.5.2 State interactions

This section identifies the main factors that affect transaction costs in the interactions between the state and the CFEs. Decentralization and devolution policies were expected to reduce the transaction costs incurred by local people, due to the greater proximity and accessibility of policy makers. However, in practice it has been observed that these policies have rather increased state control and imposed additional costs on local people (Sundar 2001; Edmunds and Wollenberg 2003; Ribot et al. 2006; Sikor and Nguyen 2007). Considering that policy formulation is often the result of a bargaining process among interested parties, the interest of local people might not be wholly considered.

The formulation of the Bolivian forest law took seven years of discussions, bargaining and coalition building between a wide variety of national and international stakeholders (Pavez and Bohanic 1998). Whereas representatives of indigenous people and farmers' associations are said to have significantly influenced the process of policy formulation, the resulting regulations do not favour these groups. For example, the law prohibits the use of chainsaws to process

trees, the only tool accessible to the rural poor. The cost for rural people of complying with such inappropriate forest management regulations is a frequently discussed issue. Benneker (2006; 2007) and Pokorny and Johnson (2008) have argued that current legal frameworks for community forestry in Bolivia and in the Amazon region make it almost impossible for communities to engage in legally recognized forest management activities. In Bolivia it is often claimed that the forest law privileges large scale commercial exploitation of forests and discriminates against local forest users (Pacheco 2007).

Researchers generally agree that the transaction costs associated with compliance with government regulations affect the business strategies adapted by farmers and other local stakeholders (Falconer 2000; Vernimmen et al. 2000; Eshuis 2006). Under certain conditions, if the costs of compliance are too high, these groups may even adopt evasive tactics that place them outside the law. This is particularly the case where formalization costs are high and direct and the benefits of formalization, such as legitimacy and rights, are unquantifiable and long-term (Nelson and De Bruijn 2005). Nelson and de Bruin also argue that formalizing is also a matter of strategic decision making about how the manager intends to interact with the institutional environment.

The occurrence of transaction costs between community organizations and state officials have been analyzed by several researchers. Falconer (2000), and Vernimmen et al. (2000) show how the actual payments that farmers have to make to comply with regulations effect their participation in certain programmes. Eshuis (2006) draws attention to how administrative process costs and the transaction costs become a barrier due to a lack of trust between local stakeholders and the government. Adger et al. (2006) argue that transaction costs become inflated by the difficulties that communities face in negotiating their way through the bureaucracy and in dealing with uncooperative (local) government officers. These aspects are briefly elaborated on below.

Nelson and de Bruin (2005) identify two types of formalization costs. First, the *de jure* costs which are immediately payable as a precondition for being granted legal status. For CFEs these *de jure* costs include the cost of elaborating the forest management plan and having it approved. The second set of costs is *de facto* costs, generally incurred later in the process of carrying out a transaction. These include taxes and additional compliance with any regulatory provisions. For CFEs these *de facto* costs include the subsequent elaboration and approval of logging plans and reports and payments of patents for forest use and permits for the transportation of logs. The growth and quality of the formal small-scale enterprise sector in developing countries is strongly influenced by whether enterprises can meet, first, the cost of pre-conditions of entry to the *de jure* process of formalization and, second, the cost of *de facto* compliance with subsequent obligations. Together these can be substantial and include all costs related to preparing and submitting applications, licensing fees, taxes, the costs of complying with prior

conditions and subsequent regulatory obligations, of time lost dealing with bureaucracy and intangibles such as stress (Nelson and De Bruijn 2005).

The effectiveness of policies in meeting their intended objectives is largely dependent on the process of policy implementation. Policies made at the national level are implemented at the local level by lower level state agents who, as Dasse (2004) argues, regularly interact with local stakeholders. This may lead these local agents to give greater weight to the opinions of local actors who dominated the previous institutional arrangements, rather than to the official new state policies. Local elites have been frequently found to be successful in influencing decision making on forest management in decentralized regimes (Edmunds and Wollenberg 2003; Nygren 2005). In Bolivia traditional political and economic elites dominate the municipalities (Andersson 2004) and the effects of this was evident in interviews during which local people often claimed that private enterprises received privileged treatment from the local forest service agents.

Interactions with state actors are often not voluntary and imply unequal interaction between a legal superior and subordinate (Paavola and Adger 2005). Kumar and Kant (2005) and Kumar (2006) observed that the traditionally highly bureaucratic, centralized and authoritarian Indian state forest agencies that previously always considered local people as the enemy of the forest now have to implement community forest management systems, without having gone through any process of reorientation. They found a significant relation between foresters' perceptions of community based forest management and the success of community forestry, demonstrating the importance of the attitudes of forest service personnel. Equally, Nelson and De Bruin (2005) found that uncooperative and obstructive officers made life more complicated for Tanzanian enterprises trying to formalize their operations. It is important to note that, in Tanzania and probably many other places, the regulatory systems was designed to control a relative small number of large legal enterprises rather than to adapt to the more numerous small scale enterprises, or CFEs (Nelson and De Bruijn 2005).

Protection of property rights

Property rights of individuals over assets consist of the rights, or the powers, to consume, obtain income from and alienate these assets. Individuals incur transaction costs when they allocate resources and organize activities in order to enhance their rights over their own assets and when they enter into exchanges intended to enhance their wealth. The transaction cost involved in exchange and in protecting rights are sometimes too high for people to bear, which lowers the value of those property rights and gives other people the opportunity to appropriate them. As the value of these resources rises, however, it becomes more worthwhile to invest in defining and enforcing property rights (Eggertsson 1990).

According to Eggertsson (1990), the enforcement of property rights is usually undertaken by individual users and the state, with the cost of enforcing those rights being lower when social

norms coincide with the basic structure of rights that the state seeks to uphold. McCann et al. (2005) observed that governments often leave the enforcement costs of policies to other parties. When policy seeks to change the unequal distribution of resources in society, the economically powerful parties are likely to seek to defend their interest against that of the beneficiaries of policy changes. Barzel (1989), then, considers it more important to examine the means that people have to protect their rights rather than to the possession of property rights per se. Legal rights may enhance economic rights, but neither are necessary or sufficient for the protection of the latter.

Bolivian CFEs have to pay a high price to protect their land and forest resources. Many CFEs were created for this very purpose. They initially had to demonstrate that the forest was being used and managed with a state approved management plan and later reinvest some of the revenues obtained from timber sales in the active protection of the forest, even paying for lawyers and going to court. This research only looks at some of the costs incurred by the CFEs. For example it does not examine the costs associated with obtaining land rights that arose as a result of the land reform law. Rather it focuses on the costs of protecting forest resources after land rights or legal recognition of land claims were obtained. Table 2.3 indicates some of the transaction costs faced by the CFEs in their interactions with the Forest Service.

Table 2.3 Examples of transaction costs generated by the transactions between the state and CFEs

Transaction costs with the state	
Information costs	<ul style="list-style-type: none"> • Finding information on requirements for management plan • Finding professionals to elaborate plan • Finding information on procedures to implement plan
Negotiation costs	<ul style="list-style-type: none"> • Approval of management plan requires constant travel, negotiation and adaptations • Delays of years to approve the plan leads to major losses of income as costs are incurred but logging is hampered. • Social cost in community due to discouragement and lack of trust in CFE managers (involving additional meetings, change of management team or halting the elaboration of the management plan altogether). • Approval of logging plan is generally fast but may be delayed causing loss of income and inability to comply with timber deliveries. • Delays in delivery of transportation permits of days (efficiency of trucks lowered) due to lack of capacity of the FS.
Enforcement costs	<ul style="list-style-type: none"> • Suspension of management plan due to problems leads to loss of contracts with market and loss of income. • Multiple official requests of CFEs to FS to halt illegal logging in their management areas
Compliance costs	<ul style="list-style-type: none"> • Elaborating a forest management plan (1 US\$/ha., average CFE management area = 20.000 ha). • Elaboration of annual logging plan (7 US\$/ha., average logging area = 150 ha). • Approval of contract with timber buyer by the FS (travel, negotiation and adaptations). • Taxes (forest patent = 1 US\$/area logged) • Transportation permits (+/-5 US\$/truck for logs)

2.5.3 NGO interactions

This section identifies the transaction costs that occur in the interactions between the CFEs and NGOs. To the author's best knowledge, such analysis of the costs incurred by communities when interacting with NGOs have not been examined before. Studies on community based natural resource management have tended to focus on the results of NGO intervention instead of the process of intervention (Blaikie 2000). Blaikie argues that development workers mostly aim their writing upstream to the development industry, rather than downstream to the 'rural beneficiaries'. Campbell and Vainio-Mattila (2003) and Edmonds (2003) note that hardly any attention has been given to the 'subject – object' relationship between rural communities participating in conservation initiatives and NGOs. This might be partially the result of the tendency of researchers to "represent and theorize on local resource management systems as if they were spontaneous and self supporting" (Mosse 2006: 711). In reality, however, they are mostly introduced from outside and are sustained by substantial amounts of resources and authority of NGOs and governments (Edmonds 2003; Mosse 2006).

The transaction cost approach has been used to analyze the impact of NGO interventions. Rural people are said to incur lower transaction costs when dealing with other parties because NGOs create more effective environments for private and public sector actors to interact. NGOs create bridges, establish trusting relations (Wiggins and Cromwell 1995; Teegen 2003) and reduce bureaucracy, monitoring and enforcement costs (McGuire and Conroy 1997). Cameron (2000) argues that the concepts of transition costs, transaction costs and uncertainty are useful in assessing the effectiveness of NGOs in redistributing risk in society. Whereas some researchers claim that NGOs are able to structurally change the institutional relations between civil society, markets and the state (Wiggins and Cromwell 1995; Cameron 2000; Teegen 2003), others question their capacity to structurally change the institutional environment of the rural poor (North and Cameron 2000).

Due to the limited number of studies that directly focus on the occurrence of transaction costs in the interaction between communities and NGOs, the factors that are likely to affect the transaction cost will be deduced from studies that discuss these interactions in a more general way. A first important characteristic of community – NGO relations is that: "in contrast to exchange, which is conditional on a mutual sacrifice of rights, a direct transfer between donor and recipient requires only that the recipient be willing to accept the gift" (Posnett and Sandler 1988: 145). This is not completely true, however, because, as the same authors say, donations are conditional in terms of the gift being used in a specified way, or for the benefits for a particular purpose, or as Blaikie (2000) says: "there are attached strings of various length and strengths to development aid" (Blaikie 2000: 1045).

Communities should not however be considered as passive recipients of development assistance. Blaikie (2000), mentions that of all the proposals made by NGOs and government programs,

local people “pick up some, leave some and struggle amongst themselves over others” (Blaikie 2000: 1045). Nygren (2004) views local people as strategically deploying their image as ‘poor farmers’ to deal with development agents, pursue their own interest and challenge the terms of their participation in development networks. Blaikie notes that all proposals for assistance are negotiated at the development interface, as described by Long (1989).

Thus, NGO interventions are negotiated (and re-negotiated) between the community and the NGO. The outcome can thus be considered as a contractual arrangement between the communities and the NGOs, even though the terms of such agreements are rarely formalized. The factors likely to generate transaction costs include: (1) the process of negotiating the objective(s) of the intervention, (2) compliance with any conditions imposed by the NGO and (3) enforcing the contractual arrangements with the NGO or, in other words, holding the NGOs accountable for complying with their promises. These three issues are briefly discussed below to clarify why they are likely to generate transaction costs between the CFEs and NGOs.

NGOs are generally considered to define their own agendas that are generally drawn from broader global development objectives (Mohan 2002). Environmental NGOs in particular have been subject to some criticism for imposing their objectives on recipients (Frazier 2006; Walker et al. 2007). In the case of community forest management initiatives in Indonesia, for example, Purnomo et al. (2005) found NGOs and local communities to have different perspectives on the indicators for sustainable forest management. Local communities stress the importance of generating financial and human resources to stimulate local economic development, whereas NGOs emphasize fair benefit sharing and forest management. Devolution of control to the local communities becomes especially problematic when the goals of local communities are not in line with those of conservationists (Campbell and Vainio-Mattila 2003; Walker et al. 2007). When these relationships become problematic the transaction costs are likely to increase, since the contractual arrangements will be contested and renegotiated (Mohan 2002).

In Bolivia, conflicts within communities have, for example, been generated by NGOs who introduced the term ‘direct forest users’ to denominate the newly created local forest management organizations. Those not included in this ‘direct forest user group’ felt left out and objected to the proposed forest management activities, although, the intention was that the user group would manage the forest in the name of and to the benefit of all community members. Another aspect that frequently generates tension is the role attributed to women within the local forest management organizations and the system of distributing benefits proposed by NGOs.

NGOs generally claim to use participatory approaches to define the problems faced by a community, formulate objectives, define the activities to be implemented and establish mutual rights and obligations. Barr and Fafchamps (2006) show that the application of participatory

approaches seems to increase community satisfaction with NGOs' assistance. Participatory approaches do, however, require considerable time and resources from both parties and generate transaction costs. Communities might try to convince the NGO to handle things differently or they might drop out of the programme altogether.

Accountability is a third aspect that appears problematic in the relation between communities and NGOs. NGOs are mostly upwardly accountable, to their donors and to civil society as a whole (as a means of upholding their legitimacy) rather than downwardly accountable to their beneficiaries (Mohan 2002; Frazier 2006; Kilby 2006; Walker et al. 2007). Accountability, according to Kilby (2006), is part of the empowerment process, as it determines the distribution of power between the NGOs and their constituencies. He further argues that accountability is about power, authority and ownership and defines the relation between actors through identification of "who can call who to account and who owns who an explanation" (Kilby 2006: 953). As the relationship between NGOs and their constituencies lies in the realm of 'grace and favour', the opportunities of beneficiaries to hold NGOs accountable are limited and the tools for enforcing this are limited and hardly ever formally constituted (Kilby 2006). However Walker et al. (2007) show how communities use NGO jargon to influence and convince NGO personnel. The mimicking of NGOs' discourses by local organizations has been reported before (Lauridsen 2002; Li 2002; Nygren 2004) and seems to be a strategy to hold NGOs accountable when implementing their proposals. As one of the interviewed community leaders argued: "You say participation, well let us participate: you say accountability well tell us what you have to spend then".

Table 2.4 presents the main transaction costs generated by the relations between CFEs and NGOs. It includes the costs of establishing a contractual arrangement, including the time spent in meetings and negotiations. It is not only the time that should be considered but also the foregone benefits from alternative activities. Some communities have requested that NGOs organize meetings during the weekend so as not to hinder their daily income generating activities. In addition to the time spent meeting directly with NGOs personnel, the communities also invest time on meetings to for internal discussions of the proposals presented by the NGO, in electing or defining those who will represent them and solving any internal disagreements. Those who are elected as leaders spend more time and personal resources on NGO activities such as trainings, workshops etc, foregoing alternative income generating activities, mostly without compensation.

Table 2.4 Examples of transaction costs generated by the transactions between NGOs and CFEs**Transaction costs with NGOs**

Information costs	<ul style="list-style-type: none"> • Finding NGO assistance • Finding information on objectives NGO
Negotiation costs	<ul style="list-style-type: none"> • Negotiations over objectives • Negotiations over community participation • Resolving internal disagreements within community • Re-negotiating activities and types of investments • Building trust with changing personnel of the NGOs
Enforcement costs	<ul style="list-style-type: none"> • Evaluating the desirability and effectiveness of NGO activities • Convincing NGO to comply with promises
Compliance costs	<ul style="list-style-type: none"> • Long and frequent meetings with NGOs • Travel outside the community without income • Travel costs to meet with NGOs in the city • Follow regulations imposed by NGO

2.6 What are the costs of doing business?

This last section of this chapter specifies and elaborates the specific activities that occasion transaction costs, i.e. the costs of ‘doing business’. These activities are referred to as transactional activities. They can be divided into activities that occur before establishing a contractual arrangement, that generate ex-ante transaction costs, and activities that occur after the contractual arrangement has been established, that generate ex-post transaction costs. Ex-ante costs include the cost of information gathering, negotiation and decision making, ex-post costs include, the costs of monitoring and enforcement and of contract compliance. There is often a strong interdependency between these cost elements (Rao 2003). For example, gathering sufficient information on the trustworthiness of a timber buyer may lead to selecting a trustworthy buyer who will comply with the contract without extensive enforcement effort.

While the transactional activities discussed so far are related to market transactions it is also useful to analyze the transaction costs that occur when interacting with the state and NGOs. CFEs need to engage in different types of transactional activities when dealing with different parties. McCann et al. (2005) observed that the environmental governance mainly involves administrative transactions. Eshuis (2006) proposes including agenda setting, constructing networks and forming coalitions as important transactional activities that stakeholders need to engage in. Whereas generally it is useful to be as specific as possible about the type of transaction costs parties incur, to be able to compare the transactional activities the CFEs carry out when interacting with the different exchange partners it is important to keep the categories general. The specific activities mentioned by Eshuis and McCann et al. can easily be ‘translated’ in the same concepts as defined for market based exchange. Agenda setting, for example, is a process of negotiation of the contractual arrangements and, at least in the case

of the Bolivian CFEs, administrative costs can be reconceptualised as the cost to comply with government regulations. The relative importance of the transactional activities per exchange partner may differ however.

2.6.1 Searching for and gathering information

Whereas neo-classical economics considered information to be freely available, it is now recognized that the available information is imperfect, that obtaining information can be costly, that there are information asymmetries between parties, that parties may have different capacities to process information and that individuals or firms can undertake activities that either diminish or enhance information asymmetry (Stiglitz 2000).

NIE attributes an important role to the cost of information because: (1) information searching, gathering and analyzing entail actual monetary costs and (2) because information (or its absence) influences economic behaviour of actors. Transaction cost theory argues that where there is asymmetric information people may: (1) use private information to misdirect other parties, this mechanism is referred to as adverse selection or pre-contractual opportunism or (2) use private, unobservable, information to misdirect the other party after drawing up the contract; this mechanism is referred to as moral hazard or ex-post opportunism (Rao 2003).

Three factors influence the cost of information gathering: (1) the presence and quality of information, (2) its value and (3) the ability of actors to collect and process information. It is generally assumed that it is possible to collect information and that information leads to more-informed (better) decision making. This idea is used by Leffler et al. (2000) who argue that the party that has collected additional information might be able to capture a greater part of the rent. This is especially true when there is uncertainty about the quality of a product as is generally the case for natural resources. Research shows, however, that this argument does not always hold as people do not generally share valuable information that can generate additional rent and may even take deliberate action to increase asymmetries of information. Equally, the capacity of people to structure and analyze information differs. Cremer and Khalil (1992) argue that information asymmetry might be due to differences in the ability of people to process and interpret information rather than to any asymmetry in the presence of information. North (1990) also argues that there is more to information processing than data. He argues that people process and analyze data differently because of bounded rationality.

In addition, information is a special type of commodity that can be compared to a public good because its consumption is non-exclusive, i.e. it is often difficult to exclude others from enjoying the benefits of information. Each piece of information is different and its quality and usefulness cannot be observed before purchasing (or acquiring) it. As gathering information is a fixed cost, the benefit of information increases with the scale of production (Stiglitz 2000). Furthermore, what people know and do not know, appears to be endogenous in the sense

that certain groups, lacking connections to the right networks, find it difficult to obtain the information that generates rent for other groups (Stiglitz 2000).

The CFEs require information on state policies and the conditions for engaging in commercial timber exploitation. This information is hard to obtain directly from state agencies, which do not generally take the time and effort to explain to communities how to proceed. Reliable information on timber prices, the trustworthiness and capacity of timber buyers, service providers and forest consultants is also difficult to obtain. CFEs that are not connected to a network of other communities engaged in forest management may base their decisions on information provided by exchange parties who withhold information and provide false information to defend their private interests. NGOs provide the most and most reliable information to communities but share little information about their own activities.

2.6.2 Negotiating and establishing a contract

Rao (2003) defines bargaining costs as the costs involved in negotiation between and or among parties to a settlement or bargain. Bargaining costs include the costs of communicating with interested parties, drawing up and revising arrangements or contracts and reaching a transaction settlement. According to Wernerfelt (2007): “bargaining costs fall in an amorphous category of delays, disutility’s, and inefficient outcomes affecting even simple conflict resolution mechanisms” (Wernerfelt 2007: 895).

Before entering into a transaction, enterprises have to take two decisions: (1) they must choose the level of detail of the agreement and (2) they must choose what kind of partner to exchange with. Contracts can range from a simple (incomplete) contract setting out the broad terms to an explicit (complete) contract specifying as precisely as possible both the responsibilities of both parties and remedies for unforeseen contingencies (Wuyts and Geyskens 2005). Mostly, the costs of agreeing on all the possible details involved in transactions are too high to develop complete contracts. Wernerfelt (2007) argues that if re-negotiation costs (ex-post) are similar to the bargaining costs (ex-ante), the payers may leave non-price clauses out of the contract. This means that if renegotiation of the contract is possible at reasonable costs (for example after an unexpected situation occurs), enterprises are likely to enter into less complete contracts.

The type of contracts that enterprises use is related to their choice of exchange partner. Enterprises that choose to exchange with partners with whom they have close social links are more likely to enter into simpler and more open contracts that are more trust-based. Choosing a socially connected exchange partner is often seen as being more effective and

² Incomplete contract: a contract in which: (i) there exist contractual gaps, ab initio, or in its interpretation ex-post; and/or (ii) it does not exhaust the contractual possibilities that could ideally be envisioned in the complete contracting case (Rao 2003: 118).

³ Complete contract: a contract that has the relevant decisions depend on all variable factors, including information sharing by the parties involved (Rao 2003: 118).

less costly but Wuyts and Geyskens (2005) argue that socially close partners cannot always be trusted. Moreover, enterprises that choose to elaborate detailed contracts with socially close partners may increase opportunism as the partners may feel distrusted and feel less prepared to cooperate. Thus engaging in contracts with close partners may leave contracts more open, but also diminishes strict contract compliance. Firms may prefer incomplete contracts as strict contractual terms may produce unwanted rigidity. With incomplete contracts, parties have greater flexibility if future market conditions deviate substantially from expectations (Gow et al. 2000).

The cost of bargaining depends on the specificity of the inputs from the exchange partners (Key and Runsten 1999) and on the incentives for the contracting parties (Wernerfelt 2008). Key and Runsten argue that the owners of specialized assets incur higher bargaining and enforcement costs because they are tied into a specific activity which reduces their opportunity for renegotiation. Bargaining power is said to depend on the resource endowments of exchange partners (Knight and Enslinger 1998) but also depends on the context in which the contract is drawn up. If, for example, where many possible exchange partners exist, parties have more options to look for better contractual conditions elsewhere (Key and Runsten 1999).

Ex-ante, the CFEs negotiate with timber enterprises on timber prices, timber volumes and additional contract conditions. Ex-post bargaining costs are likely to include payments for timber. Negotiation and bargaining activities with the NGOs and state are likely to be limited due to the characteristics of their relation but not absent.

2.6.3 Contract monitoring and enforcement

Transaction cost economics argue that contracts are naturally incomplete as agents find it difficult and expensive to foresee all possible contingencies that may arise especially when the outcomes are unobservable or non-verifiable by a third party (Gow et al. 2000). The enforcement of contracts is necessary for efficient exchange and to make investments in economic activity. Incomplete contracts open the door for opportunistic behaviour and parties expose themselves to the ex-post costs of renegotiation. Especially when parties make sunk investments (e.g. fixed costs that have been incurred and cannot be recovered) in relationship-specific assets, hold-up problems may arise.

Ménard (2000) argues that formal public enforcement institutions (such as courts) are the most common and important ways of enforcement. In many developing and transitional countries however, public institutions are either absent or ineffective in ensuring contract enforcement. It is therefore not always viable to use legal dispute mechanisms, as the cost of conducting a lawsuit (litigation costs) is high, contract law ineffective and third party verifiability difficult (Fafchamps 1996; Gow et al. 2000). Moreover, court decisions are highly uncertain and lack transparency (Gow et al. 2000).

It is now argued that public and private enforcement mechanisms complement each other. MacLeod (2006), for example, argues that “the quality of law and of legal systems interplays with the structures of private enforcement mechanisms” (MacLeod 2006: 2). One of the private enforcement mechanisms he mentions is reputation; enterprises will be unwilling to breach contracts so as to keep their good reputation for ability, integrity and performance. Other examples of private enforcement mechanisms include: the establishment of long term relations and dealing with people you know, generating trust between enterprises for the sake of long term profitability, belonging to trade groups and associations where information sharing might harm the breaching partner, using trade credit with more credit for the most trustworthy enterprises, private sanctions for breaches of contract, and, as a final option, harassment to collect debts (Fafchamps 1996; Gow et al. 2000; Koford and Miller 2006). Fafchamps (1996) and Koford and Miller (2006) both observed that markets might revert to spot market contracts when contract enforcement becomes severe, even though spot markets are not the most efficient governance system.

CFEs mainly depend on a wide range of private enforcement mechanisms to enforce contracts with timber buyers and service providers but also with NGOs and the forest service. This is because the court system is not an appropriate method for them to enforce contractual arrangements. Most of their enforcement activities are, however, directed at the market and not at the state or NGOs.

2.6.4 Contract compliance

Contract compliance is not always mentioned as a transactional activity and is more often discussed in reference to compliance with taxation systems and environmental regulations (Minang et al. 2007). Compliance is not always a matter of willingness to comply but also of ability to comply. Minang et al. (2007) studied the capacity of local communities in Cameroon to comply with the regulations of clean development mechanisms under the Kyoto Protocol and concluded that “current rules are complex, unfeasible, and unfairly beyond the capacity of poor communities such as those assessed in this study” (Minang et al. 2007: 628). McCann et al. (2005) argue that in environmental policy making governments give insufficient consideration as to who bears the costs of policy implementation. Governments that impose regulations should consider these costs beforehand otherwise they undermine their own policy implementation efforts. One example of this mechanism was recently observed in the Netherlands, where several farmers receiving subsidies for applying environmental friendly management, decided to leave from the programme due to excessive compliance costs (Noordhoff 2008). Nelson and de Bruin (2005) discuss how regulations can impose such high costs on the regulated party that compliance with the regulation can become a strategic decision; stay illegal without the possibility of growing or legalize and operate in the formal sector of society.

2.6.5 Overview of exchange partners and transactional activities

Concluding, this study is expected to present specific information on the relative height of the transaction costs of the transactional activities the CFEs engage in with the different exchange partners as presented in table 2.5.

Table 2.5 The transactional activities engaged in when dealing with the market, state and NGOs

Transactional activities		Relative expected transaction costs for activities with:		
		Market	State	NGO
Ex-ante	Searching, gathering and analyzing information	XX	XXX	X
	Negotiation and establishing the agreement	XXX	X	X
Ex-post	Monitoring and enforcement	XXX	X	XX
	Re-negotiation and complying with the contract	X	XXX	XX

It is expected that when dealing with the market the CFEs engage in all transactional activities investing most of their effort in ex-ante negotiation and ex-post monitoring and enforcement. Timber buyers are expected to offer rural people the lowest possible timber prices, obliging people to search for more and better information and expend considerable resources on contract negotiation. As formal enforcement institutions, like courts, are often not accessible to rural people in developing countries, enforcement costs are also expected to be high. Compliance with timber enterprises is not expected to be costly as most logging activities are outsourced.

Dealing with the state is different. The cost of searching, gathering and analyzing information is expected to be high because of the isolated position of rural communities and the complexity of the regulations. There is, however, little to negotiate and rural people are not expected to monitor contract compliance with the state. The cost of contract compliance with government regulations is also expected to be very high. Overall, CFEs are expected to incur less transaction costs in their interactions with NGOs since the role of the NGOs is to assist the CFEs. Communities are unlikely to engage in extensive information searching, or negotiations about the project or donor. Some time might be spent on ex-post re-negotiation of the contractual conditions, or more specifically of the project's activities and focus. Compliance costs can be moderate when NGOs expect active and frequent participation of community members.

In relating to NGOs, local communities are likely to incur both ex-ante transaction costs: i.e. information gathering and negotiation, and ex-post transaction costs, i.e. those related to enforcement and compliance. The relative importance of the different transactional activities is likely to depend on type of relation that the communities have with the NGOs and any power differences that might exist between them. Whereas more responsive NGOs might engage in constant renegotiation of the contractual arrangement, unresponsive NGOs might attempt to enforce contract compliance, leading to regular direct confrontations.

Methodology

3.1 Introduction

The objective of this research is twofold. It aims first to demonstrate that there is a relationship between the institutional environment and CFE performance and second to build understanding of the underlying factors and processes that influence this relation. As the objective is to both confirm a relationship between two variables and to explain the processes that affect these variables, it was considered that a combination of both quantitative and qualitative research methods could best answer these questions. It was proposed to apply: (1) quantitative and qualitative research methods to analyze outcomes and processes, (2) a comparative approach to be able to generalize the results to the entire CFE population in Bolivia and (3) sequential research to prepare the application of quantitative methods and analyze changes over time.

For a long time, scientists considered it impossible to combine the use of quantitative and qualitative research methods because of their origin in different scientific paradigms: the positivist and constructivist paradigm respectively. Tashakkori and Teddlie (2003) show that researchers have actually been applying mixed research methods for a long time and argue that the use of mixed methods can have advantages such as: (1) enabling the researcher to simultaneously answer confirmative and exploratory questions, (2) combining the depth of qualitative research with the breadth of quantitative research, and (3) allowing the presentation of a greater diversity of divergent views.

Following the design types described by Creswell et al. (2003) the first phase of the research had a qualitative and exploratory character. The objective of this first phase was to gain insight into the nature and development of the Bolivian CFEs and to identify their exchange partners and the type of transaction costs they incur. This exploratory study was important to gain an overall understanding of the performance of the CFEs and to answer questions such as who are the members of the CFEs, what has been their motivation to engage in forest management, who do they relate to, how do they characterize these relationships, what are their successes and failures, how do they perceive their activities, what are their future plans, etc. Information gathered during the first research phase has resulted in the publications: *El manejo forestal indigena puesto en marcha*, by Benneker (2004) and *Experiencias de manejo forestal comunitario en Bolivia*, by Benneker et al. (2005) published by the Netherlands Development Organization (SNV). This first phase of the study contributed to an enhanced overall knowledge on the existence and performance of CFEs in Bolivia.

Most studies on the performance of community based forest management initiatives use single case analyses and focus on a few variables that have significant influence within the specific conditions of the selected communities. Such an approach can lead to misinterpretation when generalizing these factors to a wider context (Pagdee et al. 2006). This study applied a comparative approach to analyze the influence of the institutional environment on CFE performance. By

concentrating the research on a single country, the legislative framework is identical for all CFEs. The presence of NGOs, market actors and the historical development of the regions differ between the regions in which the CFEs included in the study are located. Together, these circumstances constitute an interesting set of variables and enable the researcher to compare the relationship between the institutional environment and CFE performance.

During this first stage of the research the most important exchange partners of the CFEs were identified, such as the Forest Service, timber enterprises and NGOs, as well as the most important types of transaction costs they incur. For example, the costs with the state incurred through fulfilling all bureaucratic requirements, with timber buyers due to delayed harvesting and with NGOs due to multiple meetings. The interviews conducted in 2004 constitute a first body of qualitative information on the way CFEs deal with and perceive interaction with their exchange partners and a first source of information on the existing formal and informal institutions guiding this interaction. Additional information was gathered on state policies and regulations, observations of the Forest Service on the forest management plans and quantitative information on the number of management plans and logging plans approved as well as the timber volumes extracted by the CFEs. All this information was used to design the interview guide for the next phase of the research, when structured and quantitative information on the contractual arrangements and transaction costs would be collected.

During the second stage of the study concurrent nested design was applied, which means that both quantitative and qualitative information were collected at the same time (Creswell et al. 2003). Quantitative information was gathered on contractual arrangements and the characteristics of all exchange partners (CFE, Forest Service, timber buyers and NGOs), products exchanged (authorization, services, timber, etc.), and type of contracts (objective, duration, etc.). Moreover, additional qualitative information was collected on the way CFEs deal with and perceive interaction with their exchange partners, to complement the qualitative information gathered in 2004 and observe possible changes over time. Additional information on the number of management and logging plans, extracted timber volumes and changing state regulations were collected to keep the data base updated.

The qualitative data collected in 2004 and 2006, as well as practical experience of working directly with the CFEs between 1998 and 2003, constitute important sources of information. This information facilitates the assessment of changes in the relations between the CFEs and their exchange partners over time, as well as general changes in perceptions on community based forest management. This information has been used to guide data analysis and interpretation and constitute the 'story' behind the numbers.

3.2 Sample

The initial intention was to include the majority of the approximately 40 known CFEs in this research. However, while implementing fieldwork, the number of CFEs operating in Bolivia was found to be higher than expected because not only NGOs but also private enterprises appeared to finance communities' forest management plans. By the end of 2006, a total number of 160 CFEs had been registered by the Forest Service. 50 of them have been included in this study, a little over 30 per cent of Bolivia's CFE 'population'. Due to the large distances between the communities, the quality of the roads and the absence of communication means to arrange meetings in advance, the six months available for fieldwork were just about sufficient to interview all 50 CFEs. Approximately four hours was spent on each interview. The information provided by the CFE managers was checked and triangulated through secondary data (plans approved, volumes extracted, resolutions, etc.) and interviews with other stakeholders such as the Forest Service, NGO personnel, timber buyers, forest consultants and the leaders of indigenous and farmers' organizations.

The CFEs included in this research were selected according to the following criteria:

1. The CFE should manage communally owned forest.
2. The management areas should be bigger than 200 hectares.
3. The CFE should be located within the regions prioritized for fieldwork.
4. NGO and market-assisted CFEs should be included.
5. Communities should be accessible in one day (by car, bike, boat or walking).

The first selection criterion is that the CFEs manage communally owned forests. This methodological choice is justified considering that the Bolivian forest law requires communities with collective land rights to take decisions on commercial forest use collectively. Communities have initiated CFEs to take on management practices on behalf of the collective forest owners and this study focuses on the development of these CFEs as an entity. Individual community members' decision-making as to whether or not to participate in the CFE is not taken into account in this study. Neither did this study consider community members that harvest timber individually from privately owned land. This study therefore differs considerably from other studies on communal forest management where participation of individual community members in collective decision-making on forest use is considered to be one of the main normative criteria for successful collective forest management.

The second selection criterion is that the CFEs manage forest areas larger than 200 hectares. This criterion arises from government regulations on forest management. Simplified regulations exist for communities and individuals who manage forest areas smaller than 200 hectares, whether privately or collectively owned, that do not require them to get organized. For areas over 200 hectares, regulations are more extensive; they require community members to get

organized and aim at the sustainable management of the forest. This criterion was included to ensure that the CFEs being compared are subject to the same regulations.

The third criterion was included to compare CFEs that are located throughout the lowlands of Bolivia. However, the Cochabamba department was excluded as communities receive so much development aid through the anti coca-growing campaign that their situation is not comparable to communities located in other regions. Moreover, the area is risky to work in as the north American anti drugs campaign is not socially accepted.

The fourth criterion aims to ensure that the impacts of financial assistance by NGOs and market actors can be analyzed. The fifth criterion had to be included to permit the research to be implemented within its time and financial constraints. It was impossible to rent planes and boats on a regular basis to access the more isolated communities. Consequently, although communities that fulfil the criteria were selected randomly, there is a bias towards those that are accessible by car.

A total of 67 CFEs were interviewed at some point (either 2004 or 2006). 26 were interviewed during both fieldwork periods, 17 were interviewed in 2004 but not in 2006, and 24 in 2006 but not in 2004. The qualitative information used for this thesis is based on interviews with 45 per cent of the existing CFEs. Quantitative analysis is based on the 50 interviews conducted in 2006; 31 per cent of the existing CFEs.

3.3 Research methods applied

A variety of research methods were used during this research:

1. Semi structured interviews (in 2004 and 2006) with community leaders and CFE managers.
2. Open interviews (in 2004 and 2006) with community leaders (43), leaders of indigenous and farmers' organizations (25), state employees (30) and NGO personnel (25), timber buyers (30), independent forest consultants (5), and other stakeholders.
3. A case study of one CFE for in-depth information on organizational aspects.
4. Participation in community meetings and workshops on community forest management.
5. Revision of observations on community forest management plans made by the Forest Service.
6. Gather, systematize and analyse logging authorizations, authorized and logged timber volumes and regulations and resolutions emitted by the Forest Service from 1996-2006.
7. Gather and analyse contracts between CFEs and timber buyers.
8. Gather and analyse project proposals and evaluations of NGO activities.
9. Informal activities such as sharing food, soccer parties, beer, endless bus drives, etc. with stakeholders.

The respondents have been divided into three groups (see table 3.1). First, government institutions involved in forest administration at various levels. Second, the market actors represented by the timber industries, sawmills, timber traders or intermediaries, service providers (forest consultants, transporters, hirers of equipment etc.). Third, civil society including the indigenous and farmers' organizations, NGOs and other interest groups.

Table 3.1 Stakeholder groups and respondents interviewed during this study

Groups	Respondents
State	Administrative state agencies at local, regional, departmental and national levels (municipality, (sub-) prefecture, ministries)
Market	Forest superintendence (forest regulatory body) at regional, departmental and national levels Timber industry Sawmills Timber traders/intermediaries Service providing enterprises (consultancies, transport, hirers of machinery etc.)
Civil groups	Indigenous interest organizations, village leaders, traditional authorities. Projects and NGO personnel Interest organizations of other stakeholders such as colonists, farmers, etc. Community members

Some considerations regarding the application of certain research methods:

- Questionnaires are more commonly used than interviews in quantitative research, in order to reach more respondents. In this case, however, semi-structured interviews were used, as inhabitants of rural communities were unlikely to be able to read and write sufficiently well for questionnaires to be appropriate.
- The concept of transaction costs is not commonly understood by the CFE managers and so in order to discuss this topic it is important to clarify the questions and their meaning – which can only be done during a personal interview.
- It is important to respect community dynamics. CFE managers may not feel comfortable discussing CFE issues without other community members present, for fear of being accused doing business without informing other community members. Other managers prefer to talk in private so as not to disturb other people in their activities. Trying to influence these dynamics is difficult and the researcher is best advised to accept that each interview needs to be approached differently.

3.4 Definitions and operationalization of key concepts

Figure 3.1 presents the concepts used in this research, the research methods used to gather information on the concepts, the method of analysis and the location of the results of that part of the study. The concepts and the way they have been operationalized will be explained in this section.

The institutional environment has been defined by Davis and North (1970) as a set of fundamental political, social, and legal ground rules that govern economic and political

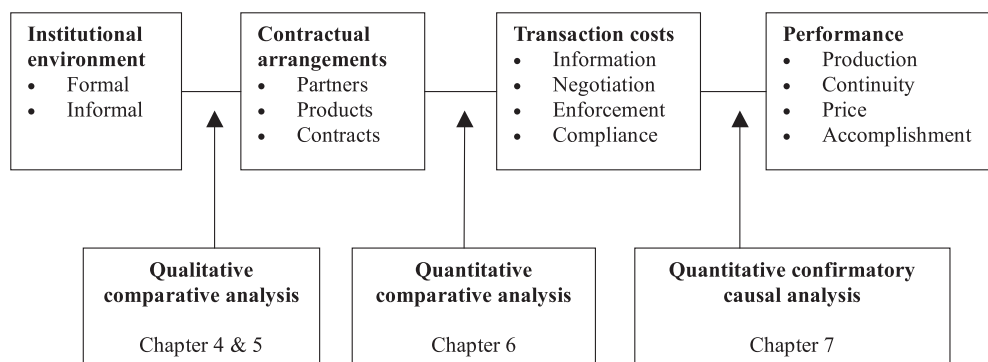


Figure 3.1 Schematic presentation of the concepts and types of analysis

activity (rules governing elections, property rights and the rights of contract are examples of these ground rules). Institutions regulate and structure social interaction and guide people's behaviour. A timber trader, for example, might prioritise paying for timber bought from the mayor over that bought from a farmer as the mayor is considered to be more important. Institutions that guide people's behaviour are complex and made up of a mixture of formal and informal rules, they are socially embedded, change over time, are largely invisible and do not affect all actors in a similar way. Institutions are therefore difficult to study directly but their presence can be deduced by analyzing people's behaviour, statements and interpretations.

The term *contractual arrangement* is used to refer to “arrangements between economic units that govern the ways in which these units can cooperate or compete” (Davis and North 1970: 133). The arrangements are the rules by which an exchange is administered, i.e. the play of the game. They coordinate exchanges and resolve disputes arising from differences in judgments. “The arrangements may be formal or informal, they may involve an organization or not, and they may be temporary or long lived. The innovation of a new arrangement will alter the way that economic units can cooperate or compete, but the change may involve a single individual, a group of individuals voluntarily cooperating together, or the government (alone or in cooperation with one or more individuals)” (Davis and North 1970: 133). This research focuses on the contractual arrangements established by the CFEs to analyze how the costs related to establishing, monitoring and enforcing these arrangements (transaction costs) affect their performance. The arrangements that will be considered in this research can be either written or verbal, formal or informal. The agreements may have been established purposefully or developed over time.

To analyze where transaction costs originate from Vernimmen et al. (2000) consider that the characteristics of the interacting parties and the agreements should be analyzed. Important general characteristics include: the type of stakeholder and his objectives, degree of dependency and power relations, trustworthiness, physical accessibility and willingness to

exchange. Regarding the transaction itself central elements are: type of products exchanged and mode of exchange, contractual history, frequency of interaction, competition and future expectations. Important characteristics of the arrangements are: type of contract, contract duration and clarity on contractual conditions. The characteristics included in this study have been presented in table 3.2. The same kind of information has been collected for market actors, NGOs and the Forest Service. This information has been collected through semi-structured and open interviews.

Table 3.2 Variables to be collected to characterize exchange parties and the contractual arrangements between these parties

Variables	Market/NGO/Forest Service
Characteristics of the actors and agreements	The type of buyer/NGO/Forest Service Location Contracts/covenants/management & logging plans Product & type of timber Type of services Time taken for approval of plans Level of investments / financial services Alternative buyers/NGOs Contract duration Number of buyers Level of mediation Actor mediating Level of interference Future perspectives
Relational characteristics	Previous contact/relations Duration of previous contact Perceived quality of relations Perceived trustworthiness Perceived assistance Frequency of interaction
Logistical characteristics	Distance Road quality Accessibility Region

Transaction costs are the costs of doing business. Following definitions by Acheson (2002), Eggertsson (1990) and Rao (2003), transaction costs include the following categories: (1) the costs of searching for and gathering information, (2) the costs of negotiating and establishing an agreement, (3) the costs of monitoring and enforcing the agreement, and (4) the cost of complying with the agreement. These activities will be further referred to as transactional activities.

McCann et al. (2005) acknowledge that transaction costs are difficult to measure. They argue that there is a trade off between collecting precise data that is not accurate and accurate data that is not precise. In situations where no accurate financial information is available, researchers resort to people's assessments of the time and resources spend on transactions using interviews

and questionnaires. This approach is also used to enhance enterprise cooperation as researchers might be denied access to financial records and analysis of financial information is a time absorbing activity (Nalukenge 2003). The Bolivian CFEs are generally informal enterprises run by people with a low level of formal education who are unlikely to keep detailed records of the costs and benefits of all transactions related to the commercialization of timber. Interviewing people appears therefore the best available research method to quantify the transaction costs incurred by the CFEs.

The estimations of time and resources spend on transactions are not likely to be very precise, especially since selling timber is not a routine activity that occurs every other day but rather a once a year event. To avoid the trap of gathering seemingly precise information when answers are not likely to be precise, it has been decided to let people estimate the height of the transaction costs on a five-point scale rather than using estimates of 'real' time or 'real' resources spend on the activities. The use of scales to determine transaction costs is not new. Artz and Bush (2000), for example, assessed the costs of negotiating by recording the time required for the preparation of a contract, the time required for negotiation and the amount of conflict in a certain relationship on a five-point Likert scale ranging from 'strongly disagree' to 'strongly agree'.

Moreover, the objective of this study is not to precisely determine the amount of resources or time spend on transactions but to analyze the effect of the transaction costs on CFE performance. Buckley and Chapman (1997) argue that managers' decisions are rather based on their perception of transaction costs than on economic calculations of transaction costs. Based on this argument it would thus be better to assess the managers' perception of the transaction costs incurred than the actual resources and time spent on the transaction costs to understand decision making and enterprises performance. This argument might be even more valid for the CFE managers as they do not have any formal education in business administration and are unlikely to record the costs and benefits and base their decisions on this type of information.

Four categories of activities that entail transaction costs have been distinguished: (1) gathering information about the exchange partner and the contractual conditions, (2) negotiating the contract with the exchange partner, (3) enforcing the exchange partner's compliance with the contract, and (4) complying with the contract. These four will be further referred to as the 'transactional activities'.

To assess the scale of the transaction costs spent on each of these activities, CFE managers were asked to talk about: (1) the time and resources spent on these activities and (2) the effort required to deal with the difficulties they encountered. The first variable will be further referred to as 'time and resources' and the second as 'difficulty' (see also: Eshuis 2006).

The assessment of the time and resources CFE managers spend on transactional activities was based on:

- The number of times managers had to travel to town to accomplish the activity: low ranking for one-off travel, high ranking for repeated travel.
- Type of town managers had to travel to: ranking from low to high for municipality, regional capital, departmental capital and national capital.
- The distance they had to travel to carry out the activity: low ranking for managers from communities close to town, high for communities at great distance from town.
- The time spent travelling to town: low for communities with access to public or private transport, high for communities that are not connected by road and have to walk or cycle long distances before having access to transport facilities.
- Monetary resources spent on all these activities.

The assessment of difficulty was based on the CFE managers' perception of:

- Achievement: low ranking when managers indicated they were satisfied with the outcome, high ranking when managers expressed dissatisfaction.
- Knowledge base: low ranking when managers indicated they had sufficient knowledge to carry out the activity successfully, high ranking when they felt they lacked knowledge.
- Self-esteem: low ranking when managers indicated they felt in control, high ranking when they felt humiliated, intimidated or cheated.

When, for example, CFE managers talked about the frequent trips they had to undertake to get transport permits from the Forest Service the activity was ranked high in 'time and resources' but low in 'difficulty'. When they commented that they negotiated with a timber buyer only once, but accepted his offer quickly because he threatened them, the activity was ranked low in 'time and resources' but high in 'difficulty'. The same procedure has been applied to assess the time and resources and difficulty of all transactional activities the CFEs managers carried out.

The time and resources put into the transactional activities was rated from one (little time and resources) to five (a lot of time and resources). The difficulty experienced was rated from one (requiring little effort) to five (requiring major effort). When CFE managers indicated that they never carried out a specific transactional activity, both time and resources and difficulty were set at zero.

Table 3.3 shows how the transaction costs variables relate to each other and how they have been processed. For all exchange partners the time and resources and difficulty of information gathering, negotiation, contract enforcement and compliance have been ranked from zero to five. To determine the total transaction cost of these tasks, the values for time and resources and difficulty have been multiplied. The size of the transaction costs for each of the transactional activities can thus range from 0-25. The total transaction cost of interacting with one exchange

Table 3.3 Structure of the collected variables

	Information Cost (IC)		Negotiation Cost (NC)		Enforcement Cost (EC)		Compliance Costs (CC)	
State	T&R (E) = 0-5	Difficulty (D) = 0-5	T&R (E) = 0-5	Difficulty (D) = 0-5	T&R (E) = 0-5	Difficulty (D) = 0-5	T&R (E) = 0-5	Difficulty (D) = 0-5
	IC = E x D = 0-25		NC = E x D = 0-25		EC = E x D = 0-25		CC = E x D = 0-25	
	Total transaction costs with the state = (TC-Total-State) = IC + NC + EC + CC = 0-100							
Market	T&R (E) = 0-5	Difficulty (D) = 0-5	T&R (E) = 0-5	Difficulty (D) = 0-5	T&R (E) = 0-5	Difficulty (D) = 0-5	T&R (E) = 0-5	Difficulty (D) = 0-5
	IC = E x D = 0-25		NC = E x D = 0-25		EC = E x D = 0-25		CC = E x D = 0-25	
	Total transaction costs with the market = (TC-Total-Market) = IC + NC + EC + CC = 0-100							
NGO	T&R (E) = 0-5	Difficulty (D) = 0-5	T&R (E) = 0-5	Difficulty (D) = 0-5	T&R (E) = 0-5	Difficulty (D) = 0-5	T&R (E) = 0-5	Difficulty (D) = 0-5
	IC = E x D = 0-25		NC = E x D = 0-25		EC = E x D = 0-25		CC = E x D = 0-25	
	Total transaction costs with NGOs = (TC-Total-NGO) = IC + NC + EC + CC = 0-100							
TOTAL	Overall transaction costs = TC-total-state + TC-total-market + TC-total-NGO = 0-300							

partner has been determined by adding up the different dimensions of the transaction costs: information costs + negotiation costs + enforcement cost + compliance costs. The transaction costs with an exchange partner can thus range from 0-100. The total transaction costs each CFE experiences has been determined by adding up the transaction costs incurred with the Forest Service + those with the market actors + those with the NGOs (for the CFEs that have NGO assistance). The total transaction costs can therefore range from 0-300.

Performance describes how “well or poorly an organization is doing” (Meyer 1994: 557). Performance is not a ‘neutral’ concept and many different aspects related to the functioning of an enterprise can be evaluated depending on one’s interest and objective (Morgan and Strong 2003). Evaluations of success and failure in community based natural resource management have been based on multiple criteria whereby authors select the criteria according to their interest (Kellert et al. 2000; Pagdee et al. 2006). Examples of these criteria are improved livelihoods, improved forest cover, equity of benefit sharing, poverty reduction, economic efficiency etc. Generally agreed upon objectives are (1) forest conservation, (2) improved rural livelihoods, including social equity and economic benefits, and, increasingly, (3) the promotion of good governance (Lund and Treue 2008).

Without questioning the importance of the stated objectives, the high expectations regarding the capacity of community based organizations to tackle major societal issues such as resources conservation, poverty reduction and local governance systems seem unrealistic. Recently, Berkes (2007) and Armitage criticized this one-dimensional evaluation of community-based conservation, saying that success cannot be attributed only to actions at the community level

but should consider the multiple linkages and partners that influence the process and the ways social actors “respond to changing circumstances, foster learning, and build capacity for management adaptation” (Armitage 2005: 703).

The danger in the one-dimensional evaluation of normative criteria is that stories about failure to deliver on the mentioned objectives have triggered researchers to, again, promote authoritarian regimes to manage and protect natural resources. Local people are considered unable to manage natural resources, without analyzing the underlying causes of failure (Wilshusen et al. 2002). A parallel can be found in dismissing decentralization programs that, according to Ribot (2004; 2006), have never even been really implemented.

To avoid the use of normatively defined performance measurement that have been defined by external parties here, two types of measurement of performance are proposed. First, a ‘neutral’ quantitative approach including harvesting capacity, continuity and timber prices as a proxy for negotiation capacity. Second, a self assessment approach whereby the CFE managers assess the performance of the enterprise. Both approaches are frequently used in literature to assess enterprise performance (Meyer 1994; Ketokivi and Schroeder 2004).

The information necessary to assess these variables is (1) year of constitution, (2) number of years logging, (3) timber volumes authorized for logging, and (4) timber volumes logged. This information has been gathered from data bases provided by the Forest Service and cover a period of ten years, from 1996-2006. Information on timber prices has been collected from the interviews with CFE managers. Accomplishment has been determined through a ranking exercise of the most important objectives of the CFEs and the rating of their accomplishment on a 1-5 point scale (see chapter 7).

3.5 Data analysis

All data used in the quantitative analysis was adapted from the original sources and entered in an SPSS database for further analysis. All semi-structured interviews with the CFE managers were transcribed and their content analyzed and coded into the database. Information collected from secondary sources, information from open interviews and data collected on harvested timber volumes was all adapted and added to the same database. Some, but not all, open interviews were transcribed; field notes were taken on the other interviews. ANOVA has been used to compare the transaction cost values between the different contractual arrangements; regression analysis was used to analyze the effects of the transaction costs on CFE performance.

Community forestry in Bolivia

4.1 Introduction

All over the world countries have changed forest governance arrangements from centralized to decentralized systems (Kaimowitz et al. 1998/99; Andersson 2002; Contreras-Hermosilla and Vargas 2002; Andersson 2003; Faguet 2003; Pacheco 2003; Ribot 2004; Colchester et al. 2006). According to Larson and Ferroukhi (2003), Bolivia transferred more power over natural resources to the municipalities than forest regimes in Honduras, Guatemala, Nicaragua, Brazil and Costa Rica. Pacheco (Pacheco and Kaimowitz 1998; Pacheco 1999; Pacheco 2003) and Andersson (Andersson 2002; 2003; 2004; 2005; Andersson and Pacheco 2005) have studied the effects of decentralization on forest governance at the municipal level extensively. They mainly focused on how the municipalities assumed and implemented their responsibilities regarding forest use.

These changes in regulations are part of a far-reaching structural adjustment program initiated by the government of Bolivia in the first half of the 1980s in response to a severe economic crisis (Kaimowitz et al. 1999). Measures were taken to reach financial stabilization, stimulate an open market economy and reduce state intervention to improve the economic situation (Pacheco 1998). In the 1990s, the government continued with additional reforms aimed to reduce state expenditure and promote private investments (Pacheco 2004). State enterprises were privatized and responsibilities decentralized to administrative departments and newly formed municipalities. To promote private investments, social reforms and new land and environmental laws were introduced (Pacheco 1998). For lowland regions of Bolivia that were hardly connected with the rest of the country until the 1970s, these measures implied additional investments for road construction and the stimulation of agricultural production (Kaimowitz et al. 1999).

The laws that are considered to have affected local forest use most are the 1994 Popular Participation Law¹, the 1996 Land Reform Law² and the 1996 Forest Law³, all of them part of the reform package. The Law of Popular Participation legally recognized all farmers' organizations, community organizations, indigenous groups and producer organizations as land-based grassroots organizations (OTB)⁴. Legal recognition strengthened these organizations significantly as they could now directly negotiate with the state and external organizations and, among other things, claim land rights (Pacheco 2004). The Land Reform Law acknowledged indigenous and farmers' land rights and was entrusted with the demarcation and titling of land. The Forest Law enabled broader participation of rural actors in forest management (Contreras-Hermosilla and Vargas Ríos 2002).

¹ Ley de participación, no 1551

² Ley INRA (Instituto Nacional de Reforma Agraria), no 1715

³ Ley Forestal, no 1700

⁴ OTB = Oranización Territorial de Base

Decision-making power on forest use has, thus, not only been decentralized to municipalities but has also been transferred to private and collective landowners. Ribot (2004) clearly distinguishes between the handing over of administrative power (deconcentration) and decision making power (decentralization) from higher to lower level government agencies and forms of privatization where decision-making power on natural resources is taken out of the public realm. The transfer of decision-making power on forest resources to local communities, generally referred to as devolution, can, according to Ribot, be considered as a form of privatization. In Bolivia decentralization and devolution of decision-making power on forest use have occurred simultaneously although the effects of both processes have hardly been distinguished by researchers. Andersson and Pacheco (2005), for example, refer to the implications of decentralization for forest use by local stakeholders without considering the effect of the altered rights over land and forest resources.

More than ten years after enactment of the 1996 Forest Law, there has been no systematic assessment of its impacts. The main objective of this chapter is to assess the changes in forest use that have occurred at the local level due to changes in forest legislation. For that purpose the regulations on forest use established by the 1974 and the 1996 Forest Laws will be compared and the practices these laws instigated at the local level analyzed. Regulations on forest use are, however, closely related to changes in property rights over land (Andersson and Pacheco 2004; Engel and Palmer 2006). Changes in land rights for rural communities, indigenous people and farmers resulting from the 1953 and 1996 agrarian land reforms will therefore be presented first. The second objective of this chapter is to clarify the position of the community forest enterprises (CFEs) vis-à-vis other types of forest use by local communities and community members and identify the distinguishing characteristics of the CFEs.

4.2 The 1953 and 1996 agrarian land reform laws, what has changed?

The 1953 Land Reform Law was enacted by a left-wing government under pressure from the rural highland population that lived under the patronage of big landlords. The objective was to redistribute the land to the farmers, to diversify the economy and to substitute imports. Serfdom had to be eliminated, labour incorporated in the market system, production levels increased and the population had to be re-distributed. This initiated migration of the Andes population to the lowlands. The colonization of the lowlands was promoted by the government from the 1960s until the mid-1980s, although the majority of the colonists never received legal land rights (Romero 2003).

Whereas the 1953 land reform is considered to have effectively distributed land rights to farmers in the highlands and the valleys of Bolivia (Raessens 2004), in the lowlands it rather stimulated the establishment of large agricultural enterprises and modern cattle ranches to contribute to regional development. The area occupied by these enterprises grew significantly over time due

to the free submission of land through individual grants, which caused an extremely unequal division of land in the lowlands. This system of land granting was installed by the military governments especially and characterized by an abuse of political power (Romero 2003).

Stocks (2005) argued that this land reform had very little effect on the lowlands indigenous groups. The 1953 Land Reform Law referred to the indigenous lowland population as 'forest tribes' and saw them as in need of government protection and without rights over the areas they occupied. However, due to the land rights granted to agricultural enterprises, the lowland indigenous people were systematically driven out of the areas where they lived. To attain legal land rights they were forced to organize in 'peasant organizations', the dominant form of organization among the highland indigenous and peasants groups. Big landowners questioned and resisted the right of the indigenous lowland population to consolidate their land rights (Pacheco 2007).

In 1990, over 600 indigenous peoples from Bolivia's Beni Department participated in the 'March for Dignity and Territory' from Trinidad to La Paz, a distance of more than 650 kilometres. The march was the result of a growing lowland indigenous movement that started in 1987 in response to declining access to lands and natural resources throughout Beni. It raised the support of the media and general public, and brought considerable political pressure on the state (Roper 2000). Three presidential decrees subsequently granted land titles for nine lowland territories totalling 2.9 million hectares in the Andean foothills (Hernaíz and Pacheco 2000).

In 1996, the Agrarian Reform Law was enacted and the Institute for National Agrarian Reform (INRA⁵) created. The main objectives of this law were to: (1) give landless people and people without sufficient land access to land, (2) guarantee property rights over land, (3) guarantee the sustainable use of the land, (4) legalize the land market, and (5) develop a way of assessing if land use complies with its socio-economic function (Hernaíz and Pacheco 2000).

The INRA law allowed both highland and lowland indigenous people and groups of communities to claim a territory by introducing the legal concept of 'Original Community Lands' (TCO⁶). TCOs grant their inhabitants collective ownership over the land, exclusive user rights over all renewable natural resources and the right to participate in the use and the sustainable exploitation of the non-renewable natural resources within their territory. Indigenous people are free to redistribute the land and resources within the TCOs to its inhabitants according to their customs and tradition as long as these are not contrary to the national legislation (Hernaíz

⁵ INRA: Instituto Nacional de Reforma Agraria

⁶ Tierras Comunitarias de Origen

and Pacheco 2000). By 1998, 25 TCOs had claimed nearly 20 million hectares. Highland and lowland indigenous groups can also request collective ownership of the area occupied by their community, while indigenous and non-indigenous farmers can have private ownership over their agricultural plots.

The peasant-extractivist population of northern Bolivia, who used to work for big estate holders to collect Brazil nuts from the extensive Amazon forest, have gained considerable access to land due to a decree made in 2000 that established their right to own 500 hectares of forest land per family to live off Brazil nut extraction. Because the land titling procedure was cheaper collectively than individually, many communities have requested collective land ownership instead of private ownership. This decree caused the breakdown of the rubber estate holders' (barraqueros) century-old dominance: they could now only access state concessions for non-timber-forest products of 15,000 hectares maximum, whereas they used to 'own' under customary law, over 50,000 hectares each (Ruiz 2004; Ruiz 2005).

Indigenous farmers cannot own land privately within collectively titled communities or TCOs. They either have to give up their private rights or renounce their right to benefit from the collective lands. All collective land rights are irreversible, indivisible, unsalable, they cannot be confiscated, and can therefore not be used as collateral, and are not subject to taxes. Plots for subsistence and small-scale farms can be sold but are also indivisible and exempt from taxes.

The regularization⁷ of land ownership and land titling is the responsibility of INRA. This process should have been finished by 2006 but hardly 30 per cent of the land holdings have been regularized because of the complicated procedures, the opposition of powerful political and economic stakeholders and widespread corruption among all parties (Stocks 2005). Illegal land occupations are frequent, either by economic and politically powerful actors presenting illegally acquired or fake land titles or by colonist farmers physically occupying land and converting forest to farmland. Government involvement in the protection of legally established land rights is minimal to non-existing. Consequently, insecurity over property rights is a general problem that affects everybody in Bolivia. Also the forest concessions and titled forest areas managed by the CFEs are frequently occupied by colonist farmers. According to Pacheco (2006), this type of pressure on the land will continue as long as the process of agrarian reforms has not been completed and people feel that deforestation will help to solidify their land claims.

Table 4.1 presents the changes in land right options for farmers and indigenous people under the 1953 and 1996 agrarian reform laws. The most remarkable change is that the lowland indigenous people have gained several options to claim land rights: (1) as TCOs, (2) as

⁷ In Spanish the term 'sancamiento de tierra' is used to refer to the technical and judicial procedures to regularize property rights over land (Pacheco 2001). As there is no simple English translation I will use the term regularization.

Table 4.1 Changes in land right options for farmers and indigenous people under the 1953 and 1996 agrarian reform laws

	Population group	Land rights according to the 1953 agrarian reform law (Hernaiz and Pacheco 2000)	Land rights according to the 1996 agrarian reform law (BOLFOR and MDSMA 1997)
1	Lowland indigenous population	<ul style="list-style-type: none"> • No right to own land 	<ul style="list-style-type: none"> • Indigenous community with collective land rights • TCO with collective land rights
2	Highland indigenous population	<ul style="list-style-type: none"> • Plot for subsistence farming • Small-scale property for agricultural production • Indigenous community with combined collective and individual land rights 	<ul style="list-style-type: none"> • Indigenous community with collective land rights • TCO with collective land rights
3	Farmers (independent of ethnicity)	<ul style="list-style-type: none"> • Plot for subsistence farming • Small-scale property for agricultural production 	<ul style="list-style-type: none"> • Plot for subsistence farming • Small-scale property for agricultural production
4	Colonist farmers	<ul style="list-style-type: none"> • Small-scale property for agricultural production 	<ul style="list-style-type: none"> • Small-scale property for agricultural production
5	Brazil nut collectors (northern Bolivia)	<ul style="list-style-type: none"> • Parcel to live and produce for subsistence (max. 50 ha.) 	<ul style="list-style-type: none"> • 500 ha. forest land per family by decree 25848 in 2000 (Ruiz 2005)

communities, and (3) as private farmers. Also the highland indigenous population gained the right to form TCOs and they maintained the right to claim communal and private land rights. Highland indigenous communities have, however, lost the ability to combine private and collective land rights within the communal area. Urioste (2004) criticizes the law for not allowing the combination of private and collective property within the communities as traditionally agricultural lands have been private but pastoral lands communal in all highland communities. Additionally, the peasant-extractivist population of northern Bolivia gained extensive land rights over the forest areas they used for gathering Brazil nuts.

4.3 The 1974 & 1996 Forest Laws: what has changed?

The previous section has shown that the indigenous people from the lowlands of Bolivia and the peasant-extractivists from the northern part of the country gained considerable access to land due to the land reform. The 1996 Agrarian Reform Law was enacted almost simultaneously with the 1996 Forest Law and these two laws were complementary in the sense that they not only considerably changed people's access to land but also their access to the forest resources on the land. This section will discuss the access of farmers and indigenous people to forest resources, mainly timber, under the previous (1974) and current (1996) Forest Laws, as well as the link between access to land and access to forest resources under the 1996 land and forest legislation.

According to Pacheco (2007), Bolivia did not have a coherent forest policy until the first Forest Law was enacted in 1974. The objective of this law was "development of the forest sector for

socio-economic benefit through the use and protection of the forest resources” (Marinissen 1998: 161). The 1974 Forest Law declared all forest to be state owned and gave the state the right to grant forest user permits over public and private land. Land rights and forest user rights were thus legally separated.

The state could grant annual, short (three-year), medium (ten-year) or long term (20-year) logging contracts. Medium and long term contracts were assigned over public forests, short term contracts were assigned over private forests (Pacheco 2007). Furthermore, enterprises could get a license for one-off⁸ logging from areas that would be converted to agricultural land or opened up for road construction. Only registered enterprises were eligible for logging contracts. To register, enterprises had to present a forest management plan, a reforestation program and demonstrate that they had the capacity to transform logs, i.e. own a sawmill or other processing plant, because it was forbidden to export logs (Marinissen 1998). Enterprises had to pay taxes based on extracted timber volumes. The use of chainsaws to process logs was prohibited because it was considered wasteful (Silva et al. 2003).

The 1974 Forest Law referred to the indigenous lowland people as forest tribes that ought to receive special protection from the state. Their areas should be delimited to guarantee the protection of hunting and fishing areas. The law allowed the indigenous populations to freely harvest forest products for domestic use (Marinissen 1998).

The Bolivian state controlled and managed all forest resources through the Center of Forest Development (CDF)⁹. The main responsibilities of the CDF were to:

- Formulate policies for the development of the forest sector
- Establish permanent forest production reserves, grant forest user contracts, authorizations and concessions, and monitor and control logging
- Guarantee the rights of timber enterprises and regulate the forest industry
- Conserve flora and fauna and promote reforestation
- Undertake research to improve forest management practices (Pattie et al. 1997)

By 1996, 173 forest enterprises had been granted 185 forest concessions over 21 million hectares of forest. This corresponds to 40 per cent of all the forests in the country (Mancilla 1996). According to Salinas and Quiroga (in Pacheco 2007) the bigger part of these enterprises operated under short term logging contracts. Long term contracts were difficult to obtain as they had to be approved by the national congress (Pacheco 1998). Most of the contracts granted enterprises the right to log on private land and land occupied by indigenous people. Only 6 million hectares of public land was issued under logging contracts.

⁸ Aprovechamiento único

⁹ Centro de Desarrollo Forestal (CDF) in Spanish

It has been generally acknowledged that under the 1974 Forest Law, the forest sector was characterized by corruption and illegality at all levels. The CDF issued forest user rights to those with political power and connections only, enterprises paid bribes instead of taxes, inventories were invented, management plans never applied nor enforced and timber extraction never monitored (Bojanic 2001; Pacheco 2007). Enterprises selectively extracted mahogany, Spanish cedar and tropical oak without any kind of forest management (Pacheco 1998).

Under the 1974 Forest Law, only well endowed private timber enterprises could legally engage in timber extraction. Local people resented this form of timber exploitation as outsiders had the right to extract valuable quality timber from 'their' regions without leaving any benefit to the local population. Indigenous people already proposed that the forest legislation be changed in 1983 and that the indigenous people should be the owners of the forest resources in their territories (Raessens 2004).

In 1992, an Ecological Pause was installed which announced upcoming changes. The formal objective of the ecological pause was to halt deforestation and forest degradation. However, as only the short term contracts were frozen, and enterprises with long term contracts and concessions could continue harvesting, the measure was perceived as a strategy to protect big enterprises from the (illegal) local enterprises. However, the regulation of the Ecological Pause did assign, for the first time, some forest user rights to farmers' communities, who were allowed to sign logging contracts with the CDF to sell timber from their plots. Moreover, private timber enterprises were instructed to consult with indigenous communities before logging from their areas. Indigenous lowland people still could not sign logging contracts however (Marinissen 1998).

As of 1992, the government of Bolivia started considering a new Forest Law to stop the plundering and extinction of valuable species, democratize access to the forest and redesign the institutional model (Tamburini s.a.). The Forest Law, enacted in 1996, was the result of a long participatory process characterized by continuous conflicts between parties protecting their interests (Pavez and Bohanic 1998). The multiple interests reflected world-wide dilemmas such as: (1) conservation versus economic growth, (2) indigenous rights versus the rights of forest enterprises, and (3) rural communities' access to forest resources.

Table 4.2 shows the organizations entrusted with the implementation of the 1996 Forest Law. Several of these were newly created such as the Forest Superintendency (hereafter called the Forest Service), the municipal forest units (UFM) and the investment fund Fonabosque. Other organizations, such as the Ministry of Sustainable Development and Planning, the Ministry of Economic Development and the prefectures, have been assigned new responsibilities. The most prominent organization is the Forest Service, which was entrusted with the implementation of the new Forest Law. The 1996 Forest Law completely changed the institutional setting and the

Table 4.2 Organizations involved in the implementation of the 1996 Forest Law

Organization	Competence / functions
Ministry of Sustainable Development and Planning	<ul style="list-style-type: none"> • Formulate forest policies, strategies and norms • Land classification and evaluation of forest potential • Demarcation of concession areas for timber companies and Local Social Associations) (ASLs¹⁰) • Set prices for concession fees and volume based taxes • Promote research, extension and education • Look for technical assistance and funding for plans, programs and projects
Forest Superintendency (Forest Service)	<ul style="list-style-type: none"> • Supervise overall technical compliance with the forestry regime • Grant management right to eligible forest users • Approve management plans and private sector agreements with indigenous territories • Enforce forest regulation and sanction illegal forest users • Register concessions, authorizations and logging permits • Inspect forest areas and activities, expropriate unauthorized timber and auction it through public bidding • Request external forest audits of forest operations • Collect concession fees and volume-based taxes and distribute them
Municipal government	<ul style="list-style-type: none"> • Propose to MSDP the boundaries of municipal forest reserves to be granted as municipal concession to ASLs • Offer technical assistance to ASLs • Organize training for ASLs • Facilitate and promote local commercial activities in their jurisdiction
Fonabosque Ministry of Economic Development	<ul style="list-style-type: none"> • Finance projects related to the sustainable management and protection of forests • Promote forest investments, and increase production and productivity of the forest industry • Promote forest marketing and the introduction of lesser known tree species • Promote value added production in coordination with prefectures and municipalities
Prefectures	<ul style="list-style-type: none"> • Design and implement public investment projects at the departmental level in the field of local forestry development, research and extension, afforestation, reforestation, and watershed conservation • Institutional strengthening of municipalities in their forest activities • Execute functions delegated to them by MSDP, MED and FS.

Adapted from Andersson (2004)

rules of the game for forest enterprises (with or without concessions), land owners and other forest users.

Table 4.3 shows that the main differences between the 1974 and 1996 Forest Laws are related to access to forest resources. Whereas access to land and forest resources was separated under the 1974 law, under the 1996 law they have been united. Provisions relating to forest management regulations, natural regeneration against reforestation, and the taxation system, whether fees are area based or volume based, also differ.

The 1996 Forest Law still recognizes the Bolivian government as the owner of all forest resources and still regulates timber extraction on private, communal and indigenous lands. Most important for this study is that all landowners (private and collective) have been given

¹⁰ ASL = Asociación Social de Lugar

Table 4.3 Important elements of the 1996 and 1974 Forest Laws

Topic	Regulations 1974 Forest Law	1996 Forest Law
1. Access to forest resources	<ul style="list-style-type: none"> • Forest is state property • Land and forest user rights separated • Medium (10 year) and long term (20 year) contracts on public land • Annual and short term (3 years) contracts on private land • Contracts accessible to enterprises with processing capacity only • Land owners have the right to extract forest resources for domestic use only • Authorization for forest conversion 	<ul style="list-style-type: none"> • Forest is state property • Land and forest user rights associated • Landowners: domestic forest use without authorization, commercial forest use with forest management plan • 40 year forest concessions on public land through public auction • 40 year forest concessions on municipal forest land for ASLs • Authorization for forest conversion
2. Forest management regulations	<ul style="list-style-type: none"> • Forest management plan based on inventory • Reforestation plan 	<ul style="list-style-type: none"> • Forest management plan based on inventory • Annual operational logging plan and report
3. Fees	<ul style="list-style-type: none"> • Volume based fee for all 	<ul style="list-style-type: none"> • US\$ 1/ha./year over concession area for enterprises and ASL • US\$ 1/ha./year over harvested areas for farmers, indigenous communities and TCOs • Volume based forest fee for forest conversion
4. Monitoring	<ul style="list-style-type: none"> • Control of transport permits 	<ul style="list-style-type: none"> • Control of transport permits • Field inspections based on logging plans and reports

exclusive user rights over all renewable natural resources on their properties. This allowed previously excluded groups such as (colonist) farmers and indigenous people to benefit from the forest resources and prevented competing claims over land and forest resources (Colchester et al. 2006). Whereas previously, private enterprises were given the right to benefit from and manage forest areas occupied by farmers and indigenous people, the farmers and indigenous people are now the owners of the land and have the exclusive right to benefit from all forest products on their land.

All untitled and unclaimed lands are considered public lands subject to the jurisdiction of the Forest Service. The law still awards industrial forestry concessions to private companies but the allocation procedure is now by public bidding and supposedly more transparent (Bojanic 2001). In practice, no public bidding has occurred after the initial issue of forest concessions. Rather, concessions have been passed on from one enterprise to the other to prevent the areas being claimed by other parties such as indigenous people and (colonist) farmers. Pacheco (2007) mentioned that the private enterprises adapted to the new system remarkably fast although they initially strongly opposed to the law. Nebel et al. (2005) observed that this adaptation process was strongly pushed by the considerable assistance private enterprises received from international cooperation.

Municipalities have been given more responsibilities on the use and management of forests within their jurisdiction and they receive part of the tax revenues from forest use within their jurisdiction collected by the Forest Service. Municipalities may set 20 per cent of the public production forest within the municipality aside and grant it as municipal concessions to local communities or local user groups (ASLs). The ASL concept was introduced by the 1996 Forest Law to motivate illegal loggers to get organized and operate within the framework of the law. These groups, once legally recognized, can request a forest concession from the municipality for timber exploitation. Almost all forested municipalities now have a Municipal Forest Unit (UFM)¹¹ that, over time, have received some additional responsibilities previously executed by the Forest Service such as the authorization of forest conversion for agricultural purposes.

Regulations on forest management are still defined by the Forest Service, however, and landowners who engage in forest management deal directly with the locally established offices of the Forest Service and have hardly any dealings with, or even knowledge of, the role of the UFM. Although Ferroukhi et al. (2003) claim that many UFM are involved in the control of illegal felling and have promoted forestry projects, this observation could not be confirmed during the fieldwork undertaken by the author.

The regulations on forest management have also changed. Both laws require the implementation of a forest inventory and the elaboration of a forest management plan. Management activities have to be carried out by the party holding the logging rights. Under the 1974 Forest Law, management regulations required reforestation whereas under the 1996 Forest Law, management regulations are based on natural regeneration, logging cycles and reduced impact logging. Forest management regulations are similar for all parties that want to engage in commercial timber exploitation independently of their objectives, logging intensities and access to capital.

Forest use taxes changed from volume-based to area-based. Enterprises were now forced to use the forest more intensively and extract a wider variety of species to satisfy their demand for timber (Bojanic 2001). The total area occupied by forest concessions was reduced by 75 per cent. The released areas could be assigned another use, such as municipal concessions, indigenous territory, communal land, farms and private property. However, all these areas had been exploited previously and stripped of all valuable timber species.

In conclusion, two main issues have changed for local people. First, local people have exclusive forest user rights over the land they own and the government cannot, as before, issue forest concessions or logging contracts over these areas. Second, within their properties (agricultural plots, communities or TCOs) local people have the right to use forest resources commercially

¹¹ UFM = Unidad Forestal Municipal

whereas before only subsistence use was allowed. On the other hand, the forest areas local people have access to have all been exploited before and skimmed of the most valuable timber species and forest management regulations are expensive to comply with and require the application of capital intensive logging systems, local people cannot afford.

4.4 Forest use under the 1974 Forest Law

Legal institutions such as the land and Forest Laws as described in the previous sections might not, however, be the only factors influencing forest use in practice. Historical developments, market institutions as well as social organizations may co-determine forest use in practice. How legal institutions get negotiated at the local level by multiple actors is clearly described by Nygren (2005) for Honduras and conceptualized by Cleaver (2002). In the following section, forest use practices under both Forest Laws will be described and the effect of the land and forest regulations on forest use assessed.

Under the 1974 Forest Law, land rights and forest user rights were separated. This meant that the government could issue contracts to private timber enterprises to log trees on private and communal lands without any compensation to the land owners. However, the majority of the rural indigenous and farmer population in the Bolivian lowlands did not possess legal land rights when the 1974 law was enacted. Some indigenous groups even lived as slaves on cattle ranches, agricultural estates and rubber estates without any legal rights at all. Even most highland farmers who participated in government-promoted colonization programs did not have legal land rights. The areas occupied by rural communities were largely considered unclaimed public land, for which the state could issue medium and long term logging contracts and forest concessions.

Figure 4.1 shows the forest area covered by forest concessions under the 1974 Forest Law. The concessions covered villages, communities, agricultural lands and indigenous territories alike. Inhabitants from forest-rich regions did (and do) not agree with the concession system and consider that the urban timber enterprises illegitimately benefit from their natural resources without contributing to the development of the region (Pavez 1998).

Conflicts between communities and timber enterprises were frequent. In the Guarayos province in Santa Cruz, for example, enterprises were said to disrespect the agricultural plots by preventing people to extract timber for domestic use and destroying the forest (Vallejos 1998). The indigenous population in the southern part of Beni considered the presence of the enterprises illegitimate, accusing them of destroying the forest with their roads, blocking the rivers with their 'crazy' bridges and eliminating wildlife by hunting (Flores et al. 2002). Forest enterprises in the northern part of Santa Cruz even got help from the army to expel colonist farmers from the area (Pavez 1998). Despite the precarious legal situation of these communities, in practice local people were extensively involved in commercial timber

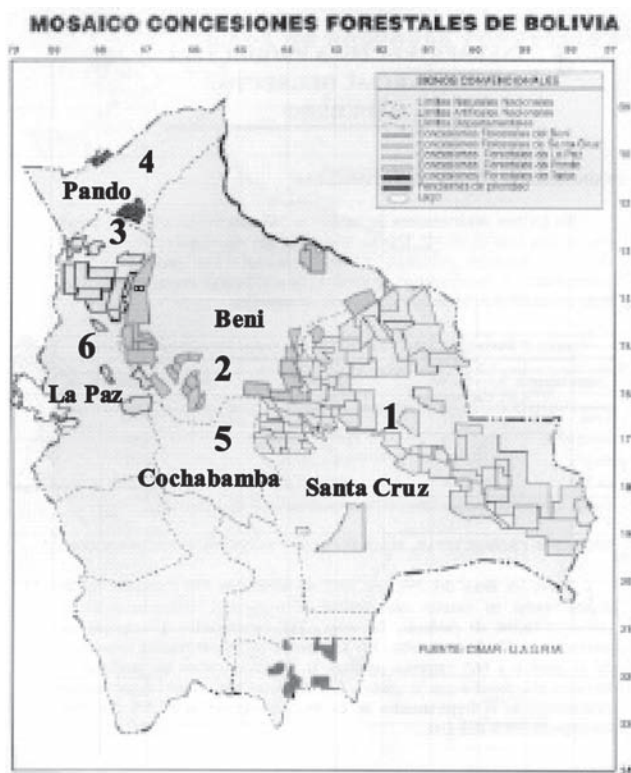


Figure 4.1 Forest concessions in Bolivia under the 1974 Forest Law

extraction for economic gain, using a variety of mechanisms depending on the specific local situation and their individual opportunities¹².

Timber extraction was concentrated in several regions that can be identified by the location of timber concessions (figure 4.1): (1) The entire north-eastern part of the Santa Cruz Department, (2) the southern limits of Beni, (3) the northern part of La Paz and (4) the northern Amazon, including Pando. In the northern part of Cochabamba (5) and the centre of La Paz (6) no timber concessions were admitted due to the steep hillsides but timber extraction took place through short term contracts and illegal logging. In Pando and the northern part of Beni timber extraction used to be less important economically than the extraction of non-timber forest products such as rubber, Brazil nuts and palm hearts.

The participation of farmers and indigenous people in timber extraction takes different forms: (1) people negotiate benefits from the enterprises that hold concessions that superimpose their lands, (2) people sell timber from agricultural lands, community lands and indigenous territories, and (3) people work as labourers for timber enterprises, either individually or as families.

¹² Most information collected on local forest use under the 1974 forest law has been extracted from 'grey' literature as NGO studies and reports and open interviews with key informants.

First, although communities located within a forest concession could not make any legal claim to the existing forest resources, they frequently negotiated benefits from forest enterprises (Kraljevic 1996). In the south of Beni, for example, the concessionaires maintained communities' access roads and provided transport to the rural centres (Flores et al. 2002). In the north of Santa Cruz, enterprises paid a certain amount per extracted tree if these originated from an indigenous farmer's plot (de Vries 1998). Kraljevic (1996) argued that the farmers were not as defenceless as they appeared because they would simply extract and sell the timber themselves if the enterprises would not pay.

Second, in the north of Cochabamba, where no concessions existed, timber from farmers' land and indigenous territories used to be extracted by local enterprises and chainsaw operators (Johnson and Velez 1998; Uberhuaga 2001). Timber enterprises made contracts with the colonist farmers unions to extract timber in exchange for roads, bridges, sewage systems, schools etc. As the unions were strong and could halt timber exploitation any time, enterprises have been eager to comply with their promises (Johnson and Velez 1998).

Third, studies by Kraljevic (1996) for the north of Santa Cruz, Johnson and Velez (1998), Uberhuaga (2001) and Hinojosa (2001) for Cochabamba, Flores et al. (2002) for the south of Beni, Silva et al. (2003) for the north of la Paz and Lema (1998) for the Amazon region, all refer to the existence of a dynamic, flexible and creative local timber market that involved significant parts of the local population. Farmers, indigenous people and migrants alike engaged in timber extraction. Flores et al. (2002) indicate that 50 per cent of the indigenous population in the TIM¹³ and the Itonama indigenous territories were involved in timber extraction, harvesting between 2-20 trees per year. Silva et al. (2003) mention that during the heyday of timber exploitation in the northern region of La Paz, virtually all male inhabitants of the indigenous and farmers' communities and all timber enterprises were involved in the exploitation of valuable timber species (especially mahogany) for export.

The production systems are characterized by the presence of the 'enabling'¹⁴ system whereby the persons that locate trees in the forest receive advance payments, provisions and at times also tools such as chainsaws and gasoline. Intermediaries, traders, local enterprises and concession enterprises all 'enable' local people to spot and log trees for them. This allows people with different financial possibilities to engage in the timber exploitation and resulted in an heterogeneous forest sector (Kraljevic 1996).

In the indigenous territories, tree spotters may act on a more independent basis. They locate valuable trees, which they appropriate by marking them and subsequently sell them. The

¹³ TIM = TCO Territorio Indígena Multiétnico, = Multiethnic Indigenous Territory

¹⁴ Habilito

indigenous tree spotter only needs to cover expenses for food for himself and his family when entering the forest to spot trees (Uberhuaga 2001). Chainsaw operators then fell the trees, divide them in blocks¹⁵, carry them to the river (on their shoulders) and transport the blocks by river to a port near an urban centre (Lema 1998; Hinojosa 2001). Some indigenous people might own a chainsaw, or have the connections and money to hire one, and might extract the timber themselves. In the humid, inaccessible lowlands, the tree spotters search for trees during the dry season; the trees are then felled during the rainy season when timber can be transported by river. In dry areas, the blocks are transported during the dry season by trucks (Maida 2004).

The decision to engage in timber extraction is individual and carried out individually or with family members. Occasionally additional people are contracted. Only people with initiative and ambition engage in timber harvesting. It is considered hard work, and requires sufficient labour to be available among family and close relatives, some capital to invest, access to a chainsaw, connections in the forest sector and knowledge about the timber market (Flores et al. 2002). The benefits from timber sales, however, allows the families to pay for education of their children, health, housing, provisions, have some money and provide secure income. In some cases a community might sell timber collectively to cover monetary needs such as community leaders' travel costs, generators, transport, water pumps and festivities (Flores et al. 2002). The Yuqui and Yuracaré people in Cochabamba established an association of people involved in timber harvesting and defined special regulations to determine the areas tree spotters and chainsaw operators were allowed to cover (Uberhuaga 2001).

Local timber markets thus used to be, and still are, extremely diverse and include a variety of people from all kinds of social, geographical and ethnic background and timber and service providing enterprises. In most places, these markets developed even before the concession system was established (Kraljevic 1996; Flores et al. 2002). Kraljevic, for example, argues that the exploitation system and its organization in the Velasco region in the north of Santa Cruz, developed during the 1960s with the first heyday of the exploitation of morado (*Machaerium scleroxylon* Tul.).

Kraljevic (1996) distinguished four main types of enterprises that made up the local timber market: (1) enterprises with forest concessions, (2) integrated local sawmills, (3) integrated traders, and (4) intermediaries. The concession enterprises and local sawmills carry out most productive activities with their own production means; the integrated traders engage in the entire production process, hiring service providers for all activities; and the intermediaries buy sawn timber from the local sawmills. The advantage of the multiple enterprises, traders, mediators, tree spotters and chainsaw operators is that the entire system is extremely flexible,

¹⁵ These block are called *cuartonos*, were the name of these people 'cuarteroneros' derive from.

capable of reacting to changes in market demand for certain timber species or products and capable of reacting to changes in regulations imposed by the regulators.

Concession enterprises and local enterprises frequently came into conflict because local enterprises harvested trees from forest concessions, or enabled local people to do so, profiting from the access roads constructed by the concession holder. However, problems occurred especially when the local sawmills would sell the timber to buyers other than the concession holder itself, because they would offer better prices or secondary conditions. Concession holders would actually buy timber from their own concessions from the local sawmills to increase their production capacity and sometimes even enabled illegal loggers to fell trees within their concession for the same reason (Kraljevic 1996). However, competition over timber was strong and the general objective was to harvest the existing timber before the other party would. Kraljevic (1996) clearly showed that the concession holders may have had the exclusive legal right to harvest timber from their concessions but this right had to be defended and negotiated with local stakeholders.

One additional aspect should be considered from an environmental point of view. Kraljevic argues that timber harvesting used to be done under a typical extractivist system, exhausting the resources it depends on. He observed that the slogan used to be: “*sálvese quien pueda y corte quien corte*”¹⁶ (Kraljevic 1996: I-1). Aware of the unsustainability of their activities, people would invest in activities outside the forest sector, such as agriculture and cattle ranching. These activities were considered future options for people locally as the forest resources were in hands of the concessionaires.

All these studies show that local people have long been implicated in timber extraction and have not, as the legal framework suggests, been spectators only. Farmers and indigenous people are ‘embedded’ in the local timber market, they receive market information, have established relations with multiple stakeholders and managed to benefit from their forest resources despite the lack of legal rights (Uberhuaga 2001). Not all authors share this relatively positive view on the position of local people in the timber market however. Flores et al. (2002), for example, consider the relation between all these actors tense and conflictive even though communities have high expectations when making a deal with a forest enterprise. Most authors recognize that all different parties were somehow complementary and benefited from each other.

Pacheco (2007) considers that it would be naïve to think that legal restrictions would stop people from benefiting from nearby forest resources. He considers, however, that the lack of legal rights to access forest resources did complicate local people’s market position as the benefits and prices local people received for their timber and labour was a mere fraction of the value of the timber. He argues that the lack of legal rights affected the economic benefits local people could obtain from the forest. Although no quantitative estimations exist on the

¹⁶ Freely translated in: “save who can save him/herself and harvest what you can”

contribution of timber exploitation to rural livelihoods, for many people timber extraction constituted one of the few locally available economic activities providing cash income.

4.5 Forest use under the 1996 Forest Law

Under the 1996 Forest Law forest user rights were assigned to the owners of the land. Due to the 1996 land reforms, farmers, peasant-extractivist, communities and indigenous peoples were assigned land ownership over millions of hectares of forest and obtained the legal right to commercially use the forest resources on this land.

If the lack of a legal right to access the forest resources indeed was the most important factor affecting the economic benefits local people could obtain from the forest, these benefits should increase considerably under the 1996 Forest Law. A comparison of the benefits local people obtained from the forest under the 1974 and 1996 Forest Laws should be able to demonstrate the importance of these legal rights. Do local people now benefit more from their forest resources than under the previous Forest Law? Do legal rights determine the degree to which local people can benefit from forest resources? In the next section forest use by different groups of local people under the 1996 Forest Law will be presented. Thereafter forest use under the 1974 and 1996 Forest Laws will be compared and analyzed.

The 1996 Forest Law has two main objectives: to manage the forests sustainably and to improve local people's access to the benefits of forest resources. The law distinguishes between different 'categories' of forest users that, following certain regulations, can harvest forest products for commercial purposes. Table 4.4 presents the different user categories and the forest management regulations that apply to them.

Two types of forest users have access to forest concessions on public land: private timber enterprises from the Forest Service and Social Local Groups (ASLs) from the municipalities. Specific forest management regulations exist for both groups. On private property landowners and farmers can log trees based on forest management plans specified for forest management areas above and below 200 hectares. On communal lands and TCOs, specific forest management regulations apply. Additionally, all landowners have the right to convert forest for agricultural purposes and sell the commercial trees according to the regulations for deforestation. Over time the Forest Service has introduced some additional forest management instruments to facilitate the access of smallholders to logging authorizations. Two of these instruments are the three hectare logging plans and the logging authorization for traditional commercial forest use. This last instrument has been applied in certain regions only.

Legal rights and forest management regulations have been put in place to enable and regulate forest use by several groups of forest users on public, private and communal lands. Local

Table 4.4 Categories of forest users and the regulations that apply to them under the 1996 Forest Law.

Land category	User right	User category	Applicable regulations	Source regulations
Public land Private/ communal property	State concessions	• Forest enterprises	• Forest management regulations for concessions and private properties > 200 ha.	• MDSMA ¹⁷ and Superintendencia Forestal (1997c)
	Municipal concession	• ASLs	• Forest management regulations for ASLs	• MDSMA and Superintendencia Forestal (1997a)
	Private property	• Private landowners • Individual farmers	• Forest management regulations for concessions and private properties > 200 ha. • Forest management regulations for areas < 200 ha.	• MDSMA and Superintendencia Forestal (1997b)
	Communal property	• Indigenous communities/TCOs	• Forest management regulations for TCOs	• MDSMA and Superintendencia Forestal (1997d)
	Private and communal property	• All land owners	• Regulation for deforestation and controlled burning	• MDSMA and Superintendencia Forestal (1997e)

people have several options to engage in timber logging: (1) they can become a member of an ASL and request a municipal forest concession, (2) they can agree with their community or indigenous organization to log timber from their communal lands or TCO based on a large (>200 ha.) management plan, (3) they can develop a small (<200 ha.) management plan for their agricultural plot or community, (4) they can harvest timber individually from a three hectare logging plan, (5) they can use an authorization for traditional commercial forest use, or (6) they can sell the timber present on their land when burning the forest for shifting cultivation.

The following paragraphs present to what extent local people have made use of these different instruments and which users have established forest management organizations or practices from 1996 to 2006.

ASL

The beneficiaries of the forest concessions issued by the Forest Service did not change as all concessions were issued to enterprises that already had long term contracts (however they obtained them). Under the 1996 Forest Law existing concessions were converted to the new concessions systems. Inhabitants of rural municipalities, however, can request a municipal forest concession if they organize themselves as a Social Local Association (ASL). The concept of ASL was introduced by the 1996 Forest Law and was intended to give local people the opportunity to engage in timber logging legally. This was a direct response to the complaint that

¹⁷ MDSMA = Ministerio de Desarrollo Sostenible y Medio Ambiente; Ministry of Sustainable Development and Environment

only urban based timber enterprises had access to forest concessions. Local people who used to work in the forest sector as tree spotters, chainsaw operators, transporters, intermediaries, traders and the owners of local enterprises were encouraged to organize themselves in an ASL and request a concession they could then manage and exploit sustainably as a group.

Kraljevic (2002) estimates that ASLs could potentially access three million hectares of forest assuming that all forested municipalities set aside 20 per cent of their jurisdiction as a municipal forest reserve as established in the Forest Law. Municipalities have to propose the limits of the areas to be declared municipal reserves and develop forest concession plans within them. The requisites for creation of an ASL are: (1) the members should reside in the municipality where the proposed forest concession is located, (2) the organization should have existed for at least five years, and (3) the ASL should have at least 20 members (BOLFOR and MDSMA 1997). The ASLs have to be recognized by the Ministry before they can be granted a concession. As all commercial forest users, ASLs have to carry out a forest inventory, elaborate a forest management plan and elaborate annual logging plans and reports.

Initially, 61 groups registered in 23 municipalities in the lowlands. Later this number increased to 83 groups according to the national association of ASLs. The area per ASL fluctuates between 10,000 and 50,000 hectares and the number of members varies between 20 and 50, with an average of 29. Up to 2006, the Forest Service approved 23 forest management plans of ASLs covering over 600,000 hectares, mostly in Santa Cruz and the north of La Paz.

This means that less than 30 per cent of the registered groups actually managed to access a forest concession. The main impediment has been the long and bureaucratic process of delimiting the municipal reserves, which depends on the equally slow and bureaucratic process of land regularization and titling (Pacheco 2004). To prevent local people losing faith, the Forest Service had to adapt its regulations and allow ASLs to initiate logging operations based on a logging plan without an approved forest management plan. This measure facilitated some ASLs to initiate forestry operations in the requested concessions while awaiting formal ratification (Pacheco 2004).

The ASLs absorbed farmers, indigenous people, timber traders, transporters and sawmill owners alike. According to Kraljevic (2002), the internally diverse groups seem to have problems consolidating as forest enterprises (Kraljevic 2002). Additionally, Quevedo (2006) mentions that the ASLs (1) are financially and technically vulnerable, (2) receive little technical assistance on forest management, (3) have deficient levels of organization and administration, (4) lack market information, (5) lack capacity in business management, and (6) lack the capacity to provide large volumes and quality timber for formal markets.

¹⁸ Meaning accepted and acknowledged

Most of these problems, however, rather seem to reflect the frustration of the ASL's advisors about the development of the ASLs than the ASLs' inability to deal with each other, the forest and the market. However, within the organizational structure of the ASLs, existing relations between the participating actors such as local enterprises, transport providers and chainsaw operators seem to have been reinforced, and do not reflect the equalitarian relationship envisioned by the advisor and policy makers. Moreover, the ASLs have access to information about the local markets they operate in rather than the export markets. Knowledge of forest management abounds to the extent that members know how to use the regulations creatively, rather than exactly follow the rules set by the government. One ASL member assured the author that they do manage their concessions sustainably, but they also extract timber from outside their concessions to complement timber volumes. His statement reflects deliberate noncompliance rather than a lack of knowledge and understanding.

In conclusion, several ASL have been created and are operational although not always in the manner envisaged. In some regions they have become very influential and fully institutionalized¹⁸ within the forest sector. The number of ASLs established in the country is, however, much lower than expected and many groups have never been able to overcome the bureaucratic barrier.

Indigenous communities

In the lowlands of Bolivia, indigenous people have demanded, and partially obtained, land rights over large areas of land mostly covered with primary forests. As the Forest Law grants exclusive user rights over all renewable natural resources to landowners, indigenous communities have access to all forest resources within their territories. 8.3 million hectares of these territories hold commercial timber production potential (Nebel et al. 2003). Since 1998, 88 community forest enterprises (CFEs) have been established by indigenous people. By the end of 2006 they were managing 1,345,767 hectares of forest. Forest management areas vary greatly and range from 50 to 90,000 hectares, with an average of 17,000 hectares per CFE. 48 CFEs operate with an approved forest management plan. Figure 4.2 shows the number of forest

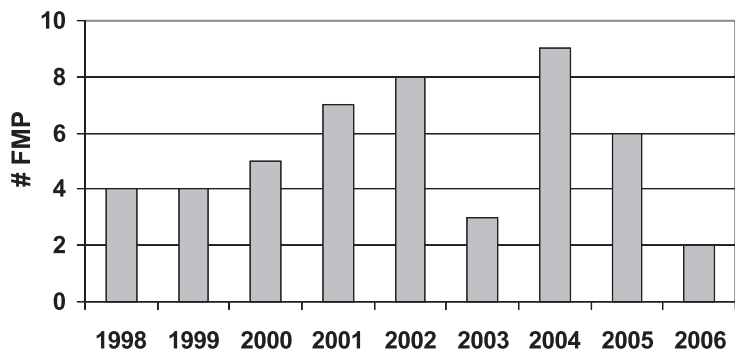


Figure 4.2 Number of approved forest management plans (FMP) of indigenous CFEs per year (n=48)

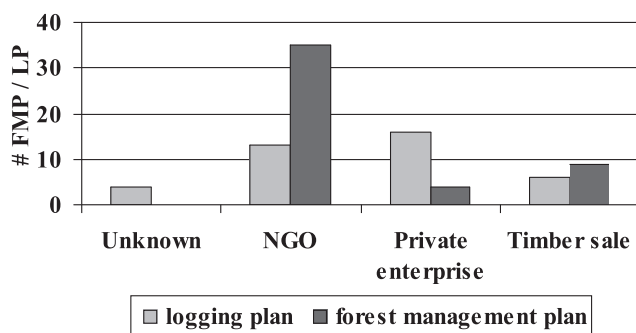


Figure 4.3 Source of financing for logging plans and forest management plans of indigenous CFEs (n=87)

management plans approved per year from 1998 to 2006. The other 40 CFEs started to operate with an annual logging plan. They were expected to develop their management plan within three months of approval of the logging plan, using their earnings from timber sales. These logging plans are referred to as a logging plan 'on account of' a forest management plan. The majority of these CFEs have never submitted a forest management plan and most of them are not likely to ever do so. Some expressed an interest in continuing if external financial means could be found or when problems with overlapping land rights or with the Forest Service are resolved.

Figure 4.3 shows that NGOs have financed the majority of the CFEs' forest management plans. Private enterprises have financed 'on account of' logging plans but few management plans. Nine CFEs have financed their management plans independently from the proceeds of timber sales. There is a significant difference between CFEs that are financed by private enterprises, where the enterprise takes on all responsibility for developing and implementing the forest management plan¹⁹, and CFEs that receive advance payments for future timber sales and contract a forest engineer to elaborate their plan. The indigenous CFEs have different organizational structures and might be formed by groups of interested persons from a community, involve all community members, involve the members of several communities or involve all the members of an indigenous territory.

CFEs that are functioning do obtain significant benefits from timber exploitation, and as the ASLs, they have regionally become important and institutionalized actors in the forest sector. In 2004, the CFEs were responsible for 37 per cent of the timber volume logged from the province Abel Iturralde in the north of La Paz. This made the CFEs the most important timber producer in the region (Benneker 2006). The rest of this study focuses on the CFEs, so this section will not further elaborate on their functioning.

¹⁹ These CFEs will be further referred to as outsourcing CFEs

Farmers' communities with forest areas over 200 hectares

Information on the number of farmers' associations with approved forest management plans for areas over 200 hectares is scattered and unreliable. Cronkleton and Alborno (2004) identified 18 farmers associations and/or communities managing 28,632 hectares by 2002. According to data held by the Forest Service, by 2006 the number of farmers' communities with management plans was approximately 52, covering about 298,500 hectares (Superintendencia Forestal 2004; 2005). Another 28 farmers' communities operated under 'on account of' logging plans, covering another 272,708 hectares. Figure 4.4 shows the number of forest management plans approved for farmers' communities per year from 1997 to 2006. The information from the Pando department has been presented separately to show that the strong increase in the number of farmers' management plans approved in 2005 and 2006 was mainly due to the number of plans developed by the Pandian communities. This is due to the fact that land rights are established and private enterprises started to finance community forest management plans.

It is noticeable that no regulations exist in the Forest Law that consider communal forest management by farmers. Farmers are considered to privately own between 30-50 hectares of land and not to own land collectively. The terms 'farmer', indicating somebody's occupation, and 'indigenous', indicating their origin, are not mutually exclusive and their meaning differs between people and regions and over time. Chiquitano indigenous people, for example, identified themselves as farmers to disassociate themselves from the 'primitive' image of the indigenous Ayoreo people living in the same region. As the political climate in the country changed, however, they started to identify themselves as indigenous people again.

Farmers' communities may refer to: (1) recently migrated colonist farmers who mainly live by farming, (2) long time migrated indigenous people and colonist farmers who have mixed with the local indigenous population, settled and now practise agriculture alongside extractivist activities especially in the Pando and northern Beni Departments, and (3) indigenous lowland farmers who practise subsistence agriculture and identify themselves as farmers. All these communities might own land collectively and have communal forest management plans.

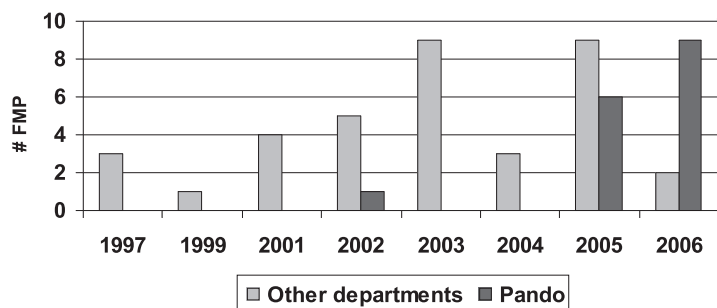


Figure 4.4 Number of forest management plans > 200 ha. of farmers' communities approved per year in Pando and all other departments (n=52).

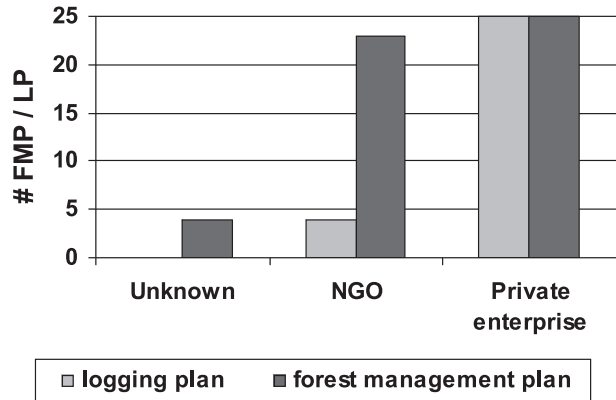
Lastly, farmers who own land individually may develop forest management plans collectively to reduce costs. This has been done especially by colonist farmers in the Cochabamba Department. These farmers have not been included as CFEs in this study as they own the land privately and not collectively.

As no specific regulations exist for farmers' communities, their forest management plans have been evaluated according to the regulations for forest management in private properties over 200 hectares. Consequently, hardly any attention has been given to the organizational features of the CFEs set up by these communities and they were never required to demonstrate that all collective landowners agreed with the plans for commercial timber extraction. The approval of forest management plans was therefore much faster for farmers' communities than for indigenous communities. Aid agencies even advised communities to develop their forest management plan before changing their status from farmers to indigenous community for political reasons.

Neither the government nor aid agencies have given a lot of attention to the role of farmers in forest management. The Forest Law, its regulations and its implementing agencies focused mainly on the management of large forest areas for commercial timber production. Farmers are considered agents of deforestation and the forest areas they own are considered too small to be managed sustainably for commercial objectives. There are three regions in Bolivia where aid agencies have stimulated the preparation of forest management plans by groups of farmers or farmers' communities; mostly for special reasons. In the Chapare region, USAID and the European Union are making major investments in alternative production systems to reduce the production of coca leaves by migrant farmers. In Sara province (Santa Cruz) migrant farmers receive assistance to reduce pressure on a national park. In Riberalta (the north of Beni) mixed indigenous farmers communities received access to the forest areas they traditionally exploit for Brazil nut extraction which are considered sufficiently large for commercial timber exploitation.

Figure 4.5 shows that the majority of the forest management plans and 'on account of' logging plans of farmers' communities have been financed by private enterprises. Individual farmers and communities can use several alternative mechanisms to log and sell trees on a small-scale basis. Although most of these mechanisms also aim to make sustainable use of the forest, in practice the Forest Service hardly monitors timber harvesting in smaller areas with the use of small-scale logging authorizations. Timber logging based on small-scale logging authorizations in certain regions is applied without application of logging regulations. Whether logging practices lead to forest degradation and deforestation or not depends on the intensity with which it is carried out; this differs greatly between regions. Some of the small-scale logging instruments will be presented and discussed in the following section.

Figure 4.5 Source of financing for logging plans and forest management plans of farmers' communities (n=81)



Farmers and farmers' communities with forest areas over 200 hectares

Farmers with forest areas smaller than 200 hectares can also develop a forest management plan. The requisites and bureaucratic procedures to approve small-scale forest management plans are considerably less than those for areas over 200 hectares. The relatively higher costs for large-scale forest management plans actually induced landowners to write several small management plans rather than a single large plan. Forest management regulations only demand information on management and logging practices and not on organizational aspects.

Regulations on management and logging practices are, however, similar for small and large-scale management plans. Most importantly, the timber cannot be transformed in the forest by means of a chainsaw but has to be transformed with a (portable) sawmill or extracted from the forest. NGOs working with farmers' communities generally considered the logging regulations to be unsuitable for timber exploitation in small areas as the costs of road construction and timber extraction cannot be recovered from the sale of small timber volumes (Cronkleton and Alborno 2004). Some NGOs (Jatun Sacha, CIPCA and IPHAE) have tried to propose alternative management systems for farmers with small forest areas, with limited success. Smaller areas are therefore harvested in one or two years to extract bigger volumes at once,

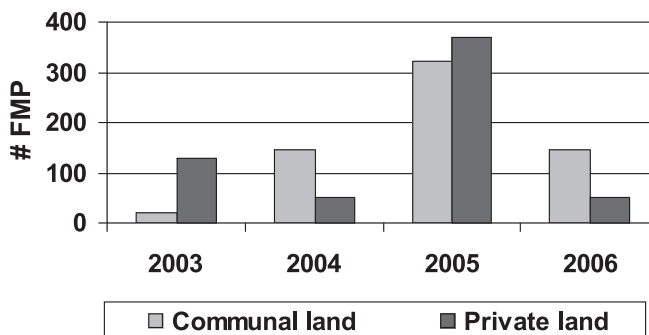


Figure 4.6 Number of forest management plans (FMP) < 200 ha. approved per year on communal and private land

and are then, in theory, left to regenerate for 20 years. The use of these forest areas is not monitored, however, and the chance that these areas will be left untouched for 20 years is very small. Figure 4.6 shows that especially in 2005 the number of large-scale management plans increased significantly. In communal areas the number has been increasing since 2003. In 2006, a new Forest Superintendent was assigned who halted the approval of these plans as they were considered to be driven more by demand from the timber market than by the needs of farmers and rural communities.

Land clearing

Another option for local people to harvest trees legally is through a 'deforestation plan.' All individuals or communities that own land can convert forest into agricultural land and sell the trees. Land clearings require an official authorization and payment of a flat fee. Additionally, the owner pays a fee based on the volume of timber extracted from the land. All authorizations for land clearings are given based on a land use plan that the owners have to develop for their properties. These private land use plans are (or should be) based on the regional land use plan, which defines potential land uses. Indigenous farmers negotiated with the government that for clearing areas of land smaller than three hectares they would need no land use plan and pay no fee for land clearing. They do have to pay a fee based on the extracted timber volume however (Andersson and Pacheco 2004).

The timber volume extracted from land clearings increased significantly over the last three years. This could indicate that deforestation increased but farmers frequently only harvest the timber from the areas without actually clearing the land. This indicates that permission for land clearing is easier and/or cheaper to obtain than logging permits. The Forest Service disapproved of farmers using authorizations for land clearing to harvest timber from their land, because farmers could extract an unlimited number of trees of all sizes without considering the sustainability of the forest. In practice, however, the forest areas were being degraded but not converted to agriculture.

Three hectare logging plans

To prevent farmers from clear cutting the forest merely to extract timber, the Forest Service introduced an additional small-scale logging authorization, covering agricultural plots of three hectares or less. Requisites were reduced to a simple hand-drawn map of the trees within the area the farmer wanted to log from and some proof of ownership of the plot. Neither a professional's signature nor a land use plan were required. The only constraint was that these permits were issued only once for each parcel. The three hectare logging plans have not been applied in the entire country.

A large number of farmers made use of this instrument. Cronkleton and Albornoz (2003) show that the timber volume extracted from these three hectare plots was much higher than the volume extracted from other areas and was always higher than the authorized volume. Once

the Forest Service realized, or admitted, that this instrument was being used to extract timber from neighbouring areas and even from other regions, they decided to halt its application. Local people reacted with roadblocks and forced the Forest Service to at least approve the 110 applications submitted before the suspension (Navia 2007).

Traditional commercial logging

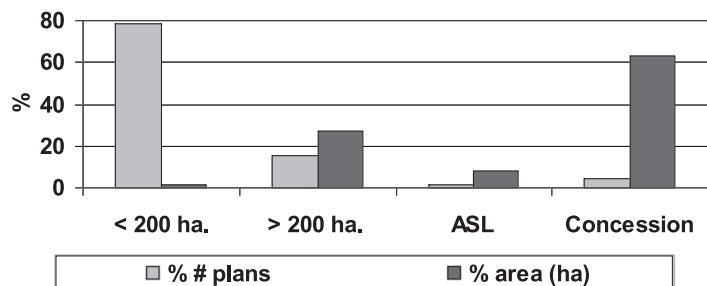
A similar local type of permit is the authorization of 'traditional commercial logging' issued by the Forest Service in Beni. Whereas the Forest Law considers it the right of local people to sell timber to buy basic necessities, no specific rules have ever been established. Only in Beni, every person is allowed to sell two trees per year to generate additional income.

Figure 4.7 shows the relative importance of some of the discussed logging authorizations. Almost 80 per cent of all management plans in Bolivia correspond to small-scale (< 200 ha.) plans elaborated by farmers, indigenous people and private landowners. Rural people thus seem to have increased their legal access to forest resources upon receiving legal land titles and most of them use small-scale logging authorizations to sell trees. The forest area rural people have access to is only a fraction of the total productive forest area. CFEs and other private landowners as well as the ASLs received access to considerable forest areas that used to be managed by private enterprises. Farmers and indigenous people participating in the CFEs are likely to have considerably increased their access to forest resources. The number of ASLs and CFEs that have engaged in sustainable forest management to log timber is, however, less than expected. Forest concessions granted to private timber enterprises still make up the biggest productive forest area of all types of permit.

4.6 Adaptation of the timber market

The previous section has given extensive information about the legal instruments farmers and communities use to extract timber from their forest. An important additional aspect to consider is the role taken on by the market actors which used to constitute the dynamic timber market under the 1974 Forest Law. After enactment of the 1996 Forest Law, market actors initially continued their (illegal) activities but were forced to comply with the new regulations due to the increased control and presence of the Forest Service. Timber exploitation from areas

Figure 4.7 Relative number of forest management plans and forest area for management plans < 200 ha., management plans >200 ha. (including CFEs and private landowners), ASLs and private enterprises with forest concessions.



other than the state forest concessions was therefore initially reduced. Over time, however, the number of small and medium timber enterprises and enterprises providing services gradually increased in the forested regions as market actors envisioned the new opportunities for timber extraction from private lands. As the forest area held under state forest concessions was reduced and the landowners granted exclusive forest user rights, the potential forest area and forest resources accessible to small and medium-sized forest enterprises without access to a state forest concession increased enormously.

Ten years after enactment of the 1996 Forest Law, timber extraction from forest areas outside the conventional concessions increased considerably and is expected to grow even more in the future. Over the last few years, the number of installed sawmills increased considerably in all traditional timber exploitation areas. In Guarayos, Santa Cruz, for example, their number increased from four in 1998 to 11 in 2006 and others were being installed. None of these locally installed sawmills have forest concessions. They all buy timber from indigenous and farmers' communities, private landowners, including small farmers, and ASLs. The access to timber extraction from private lands and municipal forest concessions granted to the ASL has enabled small and medium scale forest enterprises to develop far beyond the level reached under the 1974 Forest Law when the locally established forest enterprises depended mainly on illegal logging. The presence of more sawmills implies increased activity in the entire production chain. More people sell trees and more people engage in felling trees (chainsaw operators), extracting logs from the forests (service providers of skidders, loaders and trucks), transforming timber (local sawmills, drying plants, and chainsaw operators), transporting logs and planks to urban areas (intermediaries, traders) etc.

Under the 1996 Forest Law, market actors without state forest concessions had to make several adaptations to continue timber extraction. First, they had to accept that the farmers, communities, ASLs and private landowners now had exclusive forest user rights to areas of forest that used to be freely accessible. Second, they had to start negotiating timber sale contracts with landowners and ASLs to access timber. Third, they had to establish or reestablish relations with the Forest Service and forest professionals in order to, at least theoretically, work within the framework of the law. As the 1996 Forest Law requires all plans, reports and transportation permits to be signed by forest professionals of different levels²⁰, forest professionals occupy a crucial position in the newly established timber market.

It took some time, however, for the local market to adapt to this situation. Initially the local market started drawing up timber sale contracts using small-scale logging authorizations with private land owners. Private land owners in the lowlands of Bolivia are generally big farmers

²⁰ For example, a forest management plan needs to be signed by a forest engineer whereas a logging plan can be signed by a forest technician.

and cattle ranges that are part of – and/or strongly connected to – the timber traders and enterprises. Later on, small-scale logging authorizations were also used to buy timber from farmers and indigenous people.

As small-scale logging authorizations are cheaper and easier to obtain, most logging activities financed by small and medium forest enterprises that do not have forest concessions are based on this type of authorizations. Besides, individual farmers and community members do not have access to large areas of forest and timber sale contracts are generally made with individuals rather than entire communities, even though the forest is communally owned.

The forest professional started to occupy a new position in the timber market from state authority to a provider a professional services to private landowners, ASLs, farmers and communities. The new opportunities enabled many new entrepreneurs to start operating in the timber market. The timber market now offers service packages that include the development of forest management and logging plans with all required documents, dealing with bureaucratic procedures, obtaining logging permits and the organization and implementation of timber extraction. Local people are offered the opportunity to sell the trees on their land in a relatively easy way and the economic benefits from timber sales constitute an important additional income for people.

The prices for timber logged with small-scale logging permits are, however, lower than those harvested under large-scale management plans. For mahogany, for example, prices of 50 US\$ per tree logged under small-scale authorizations and 350 US\$ per cubic metre of timber under large-scale management plans have been observed during fieldwork. Due to the competition between timber buyers, farmers and community members are being approached directly and even persuaded to sell the timber on their land. Pressure on local people to sell their timber is high, especially in the most accessible regions (such as Guarayos) and those regions where valuable timber species still exist (such as Pando). In these areas, contract breaching, in the sense of non-payments or the failure to extract timber is risky for the buyers, who might find that the farmer sold the tree twice if he fails to extract and pay for the tree on time. Timber buyers justify the low prices they pay for the timber by emphasizing the risk they run when drawing up contracts with farmers who, in their opinion, cannot be trusted.

Market actors only assist with and finance large-scale management plans under special circumstances. This might occur when high levels of investment are required due to the inaccessibility of the area, for areas where valuable timber species are present, when Forest Service limits the availability of small-scale logging authorizations, and, lately, in areas where competition between timber buyers is so high that large-scale, and long term, management plans are used to guarantee access to timber resources in the future.

The timber market did not develop equally in all timber producing areas however. Whereas in some regions market actors adapted their strategy to take account of the changes in rights over forest resources, in other, more isolated, regions, trade relations established before the 1996 Forest Law seem to continue even more than ten years after enactment of the new Forest Law.

Local market actors have strongly pressured the Forest Service to simplify the regulations for farmers and local communities. As mentioned before, different types of regulations were adapted to facilitate small-scale logging, so that local people should have better access to the benefits from forest resources. The driving force behind the changes in regulations for small scale logging however are the market actors, including forest professionals, rather than farmers and community members.

Whereas the Forest Service still adjudicates forest concessions to private enterprises, they have acquired an additional role of approving and monitoring the forest user rights of private landowners that are established by law. The number of people who need monitoring, however, is far beyond the implementing capacity of the Forest Service. Due to the lack of control on timber extraction, logging practices based on small-scale logging authorizations do not follow forest management regulations.

4.7 Conclusion

The main objective of this chapter was to assess the changes in forest use that have occurred at the local level due to changes in land and forest legislation. Secondary objectives were to clarify the position of the community forest enterprises (CFEs) vis-à-vis other types of forest use by local communities and to identify the distinguishing characteristics of the CFEs.

The results of this chapter show that despite having limited legal opportunities, rural people, farmers and indigenous groups were extensively involved in timber exploitation activities under the 1974 Forest Law. Changes in land and forest legislation in 1996 enhanced farmers' and indigenous communities' control over the forest resources on their land due to the formalization of customary land rights and the association of landownership with forest user rights. Even so, farmers and indigenous people still require capital to convert legal rights into actual logging authorizations. The timber market has 'discovered' the potentially accessible timber supply on private and communal lands and started to offer services such as preparation of the required documents and extraction of the timber in exchange for access to timber resources. Market actors generally apply the cheapest, most easily accessible and least controlled type of logging authorization they have access to: the small-scale logging authorizations. Under specific conditions private timber enterprises have financed large-scale forest management plans for the communities.

The devolution of decision making power on forest use to private and collective landowners increased the access of market actors to timber. The involvement of rural communities and farmers in timber extraction activities has therefore increased. Whereas in certain regions previously established exchange relationships between timber traders and community members persist, in areas where timber traders compete over access to timber the exchange conditions have improved since 1996. Logging based on small-scale authorizations is the most common way to sell timber. Forest management regulations are not applied or monitored. The effects of this type of logging on the forest are likely to differ by region, due to different logging intensities and largely unknown. The CFEs and local social associations (ASLs) constitute the only forest management initiatives undertaken by rural people that implement forest management regulations and conserve the forest areas under management. The focus of this thesis is on the CFEs, whose functioning will be further analyzed in the following chapters.

5

Institutions that matter

5.1 Introduction

Chapter four presented some general characteristics concerning commercial forest use by local people in Bolivia. The chapter closed with the observation that whereas most farmers and community members use small-scale logging authorizations to sell timber, the community forest enterprises (CFEs) and local social associations (ASLs) are the only local initiatives that apply sustainable forest management practices through large-scale forest management plans. The following chapters (5, 6 and 7) will concentrate exclusively on the constitution and functioning of the CFEs. This study defines the CFEs as organizations that: (1) manage collectively owned forests in name of all community members and (2) follow forest management regulations established by the Forest Law. The overall objective of these chapters is to demonstrate that the institutional environment greatly influences the constitution and functioning of community management initiatives and that community based forest management initiatives cannot be judged without considering the institutional environment they are located in. This argument has also been made by Adger et al. (2006) and Nygren (2005).

The three following chapters will demonstrate the influence of the institutional environment on CFE performance. The presented results are based on the analysis of both qualitative and quantitative information. The qualitative information serves to explain the processes by which institutions influence CFE performance, whereas the analysis of quantitative data substantiates the findings. In chapter five different elements of the institutional environment have been identified and the processes by which the different interacting institutions influence the formation of contractual arrangements between the CFEs and other societal actors have been analyzed. Institutions are considered to offer both opportunities and constraints to the CFEs. The resulting contractual arrangements are not expected to be the result of purposeful action but rather the outcome of complex processes of interaction between multiple actors at different scales that are guided by a plethora of both formal and informal institutions.

Chapter six then analyzes the transaction costs the CFEs incur under the different contractual arrangements identified in chapter five. The transaction costs are considered to be an indicator for the degree in which the institutional environment facilitates or hinders CFE performance. The transaction costs the different exchange parties impose on the CFEs will be analyzed and the importance of the different transactional activities (information searching, negotiation, enforcement and compliance) assessed. Lastly, the changes in transaction costs over time give information about the development of the relation between the CFEs and their exchange partners. In chapter seven, the effect of the transaction costs on CFE performance will be analyzed to confirm or reject the hypothesis that the institutional environment affects CFE performance. The results of all chapters will be discussed in chapter eight and concluding remarks on the effect of the institutional environment on CFE performance and the use of the transaction costs approach to study this will be made.

The current chapter thus means to shed light on the institutions that have influenced the establishment of the contractual arrangements between the CFEs and their exchange partners. I will consider both the institutional environment level where the formal rules are situated, and the social embeddedness level where norms, customs, morals and traditions are located (Williamson 2000). I do not expect these levels to be fully distinguishable. After all, formal rules are created by people in a specific social context and are based on the historical development of both formal and informal rules and norms in society. Whereas formal rules reflect socially embedded rules, they are likely mainly to reflect the norms and values held by the dominant parties in society (North 1990; Cleaver 2002). I will discuss the influence of formal and informal institutions simultaneously because the resulting contractual arrangements are expected to be the result of the incentives created by both type of institutions in interaction with each other (Leach et al. 1999). Incentives shaped by either one of these types may be strengthened or weakened by the other. Moreover, institutions do not affect all actors in society in a similar way as power relations are inherently embedded in all institutional arrangements and affect the capacity of social actors to question and negotiate institutions (Leach et al. 1999).

This study does not attempt to describe all influencing institutions but limits itself to those that most directly affect to the constitution and functioning of the CFEs. The institutions that have been identified are: (1) property rights over land and resources, (2) forest management regulations, (3) market institutions and (4) institutions guiding NGO activities.

5.2 Property rights over land and resources

The forest user rights that were devolved to local communities by the 1996 Forest Law are contingent upon the possession of legal land rights that were supposed to be transferred to local communities by the National Institute of Agrarian Reform (INRA). The process of regularizing property rights over land and assigning titles to indigenous organizations and communities has been (and still is) conflictive, time consuming and ineffective as described by several authors (de Vries 1998; Hernaíz and Pacheco 2000; Urioste and Pacheco 2001; Villanueva 2004). Moreover, INRA, responsible for regularizing and granting land rights, and the Agricultural Service¹, responsible for regulating and controlling land use, do not offer any support to the communities to defend the granted rights or acknowledged land claims. Laws favourable to the rural population may be enacted but their implementation still depends on those in power. Bardhan (2005) also argues that “inequality in power distribution in society influences the social legitimacy of laws enacted or decreed” (Bardhan 2005: 70). In Bolivia, the institutions entrusted with the defence of land rights are not prepared or able to protect the land rights of indigenous communities (Romero 2003).

¹ Superintendencia Agraria

As a result, the defence of land rights through the official system is difficult, expensive, lengthy and unrewarding. In practice, the absence of enforcement of land rights by the state causes major conflicts between actors, even leading to violent confrontations, especially between indigenous communities, colonist farmers and cattle keepers. Stocks (2005) even considers that indigenous lands in Latin America are in danger of being extinguished completely and that strong institutional support from the state is critical. He considers, however, that Bolivia: “suffers from ineffective state institutions and a plethora of dissonant laws with regard to indigenous lands” (Stocks 2005: 98). Consequently, without state assistance the rural communities need to find alternative strategies to protect their land rights.

Scholars have paid extensive attention to the concept of property rights in natural resource management. An important contribution to this discussion was made by Schlager and Ostrom (1992) who argue that property rights actually consist of ‘bundles of rights’ such as: (1) the rights to access and withdrawal, (2) the right to manage, (3) the right to exclude others, and (4) the right to alienate. It is generally acknowledged that legal rights are not necessary nor sufficient for the existence of economic rights but that rights are a function of people’s effort to protect their rights, other people’s attempts to capture those rights and government protection of those rights (Barzel 1989).

Bromley argued that: “property is a social construct and thus objects such as land and associated assets are not protected because they are ‘property’ rather those things (such as land) that are protected become – by that conscious social action – ‘property’” (Bromley 1997: 45). The opportunities people have to appropriate land thus depends on the perception of other people in society. As Bromley states: “What I own depends on what others in society say I own (‘yes that is yours’), not what I say I own (‘this is mine’)” (Bromley 1997: 50). Also Juul and Lund (2002) found that property rights need the support of social institutions. These institutions are, however, actively reproduced or contested through constant negotiations that are pervaded by power relations. They argue that the outcome in terms of changing, transforming or solidifying land claims involves all sorts of tactical and strategic manoeuvres. As different social actors have different capacities to voice and stake their claims, they rely on different institutions to support their claims and combine sets of claims supported by different institutions (Leach et al. 1999).

Indigenous and farmers’ communities and organizations also strategically apply different institutions when using the concept of ‘sustainable forest management’ to strengthen land claims and protect land rights. This means that many CFEs were not initially formed to make profit out of timber sales but rather to protect property rights. In the following section, the mechanisms applied to protect land rights that are related to forest management will be described.

In Bolivia, forest management as a strategy to obtain land rights had been applied by the inhabitants of the Lomerio indigenous territory even before enactment of the 1996 Forest Law.

Bebbington (1996) argues that the lowland indigenous organizations wanted to demonstrate that they could manage fragile forested land sustainably and profitably to strengthen their claims that the government should recognize Indian territorial rights to those lands. After enactment of the 1996 Agrarian Reform Law and the 1996 Forest Law all rural communities were granted the legal rights to own the land they lived on and profit from the forest resources they had fought for. The forest user rights were subsequently used to legitimize the land claims made by the communities and to protect their newly obtained land and forest user rights.

The indigenous lowland populations use the forest areas they occupy in an extensive way; hunting, gathering and practising shifting cultivation. They argue that they need extensive territories to express their socio-cultural identity and guarantee sufficient access to land and resources for present and future generations. The indigenous population, however, uses only a fraction of their territory (0.1 ha./family/year) for agricultural purposes and hardly produces for the market. This is not what 'working the land' implies for many other Bolivians, who consider the indigenous people lazy and unproductive. As in Bolivia a person who works the land is legally entitled to own it, indigenous territories (and other apparently unused areas) are frequently encroached upon by colonist farmers, large farmers and cattle keepers. They burn down the forest to demonstrate their hard work and claim the land as theirs, thereby actively contesting indigenous land rights (Stocks 2005).

The lowland indigenous organizations considered engagement in forest management a suitable strategy to defend land rights because through the development of a relatively simple document, the forest management plan, they could assign extensive forest areas a socioeconomically accepted function (timber exploitation) without having to physically occupy these areas. Environmental NGOs working with the indigenous organizations promoted this strategy as the indigenous people's objectives seemed to coincide perfectly with their own conservation and development agenda (Lauridsen 2002). Although Redford and Stearman (1993) demonstrated that the objectives of the indigenous organizations and the environmental NGOs are actually quite different, they are considered to be mutually beneficial.

The importance of the legislation that NGOs have invested heavily in should not be exaggerated however. Juul and Lund (2002) assert that laws and regulations are never universally respected but not entirely neglected either. According to them, the state should not be seen as a single institution but rather as several institutions, each with their own interest and capacity to exercise authority. State institutions should therefore rather be considered as additional parties in society that engage in the negotiations about property rights. As the political game is not well structured by clear and transparent rules participants have the chance to renegotiate the rules which amplifies the uncertainty of land rights (Juul and Lund 2002).

These considerations have several implications that are clearly observable in the Bolivian context. The Forest Service and the Agricultural Service have different opinions about the type of land use they want to promote: the Forest Service prioritizes the preservation of forest areas for the exploitation of forest products (mainly timber) whereas the Agricultural Service prioritizes agricultural production. The indigenous communities that, for whatever reason, engage in forest management could theoretically be important allies of the Forest Service in their mandate to conserve the forest and promote sustainable forest use. The Forest Service, as an institution, however, has never considered the indigenous communities as allies. With the creation of the indigenous territories, the forest area available for forest concessions had been reduced considerably and the indigenous communities have strongly contested the concessions granted in the demanded territories (Tamburini 1997). Moreover, indigenous and farmers' communities were considered incapable of managing the forest for timber production and were expected to leave the forest 'idle', reducing access for the timber industry. The Forest Law, therefore, also contains a clause that enables the indigenous communities to make subsidiary contracts with private enterprises if they are not in the condition "to execute their forest user rights" (Marinissen 1998: 176).

Whereas the legal struggle over indigenous land rights versus forest concessions is being fought out by the indigenous organizations and their lawyers, the CFEs in the rural areas have started to consider the Forest Service, or at least certain forest officers, as their allies. As an approved forest management plan is a legal contract between the Forest Service and the communities, the Forest Service has the mandate to monitor and control forest use. To gain some back up from the state to protect their land rights (the INRA and Agrarian Service never responded to calls for support), the communities and CFEs have frequently appealed to the Forest Service, presenting land rights problems (i.e. occupation by a third party) as problems over forest user rights (the third party clearing the forest for agriculture). Locally based forest officers were more accessible and more predisposed to assist the CFEs in protecting the area covered by a forest management plan. Increased legitimacy due to involvement in a more socially acceptable land use practice was thus strengthened by the access to state authority to defend these rights.

Practical assistance from the Forest Service actually differs greatly by region and depends mainly on the personal conviction of the forest officers. Over time the number of forest officers judging CFEs positively increased considerably as did the support CFEs received from the forest officers. As an institution, however, the Forest Service has only marginally changed its attitude towards the CFEs, as is reflected in the continued differentiation of regulations for private and community enterprises. Two examples can be given. First, private enterprises log first and then pay the forest patent thereby accumulating heavy debt but CFEs have to pay before they are allowed to log and have no outstanding tax –payments with the Forest Service. Second, private enterprises that experience competing claims over land can continue

harvesting whereas CFEs that experience competing land claims face immediate annulment of their logging rights, irrespective of the legitimacy of the competing claim or the level of investment made in the logging operations.

Moreover, the Forest Service obliges communities to actually engage in logging after approval of the management plan, otherwise logging rights will be annulled. This seems a reaction towards the strategic use the communities make of the management plan to strengthen land claims without actually producing timber (thereby limiting the forest industry's access to timber on community lands). When communities do not want to engage in intensive logging, the Forest Service advises them to use small-scale logging authorizations to sell timber occasionally. It is not clear why a government agency promoting sustainable forest use would advise communities to use small-scale logging authorizations when they show interest in developing large-scale and long-term forest management plans. Small-scale logging authorizations do not, however, interest communities that aim to use forest management as a strategy to strengthen land rights.

While the concept of 'forest management' has been strategically applied by rural communities to strengthen land claims, the monetary benefits from timber sales have also played an important role in the protection of property rights. Income from timber sales enabled several communities to pay for the necessary documents to establish land claims, pay for lawyers to engage in lawsuits, continuously denounce illegal settlements and physically protect land rights and forest resources. This enabled the CFEs to protect their forest resources against illegal loggers rather successfully in some regions. CFEs have, for example, demarcated the borders of their lands, invested in trails in and around the forest for monitoring activities, denounced illegal logging activities to the Forest Service, confiscated illegally logged timber. etc. The theory predicting that people will protect their resources when they directly reap the benefits from their actions seems to hold for the Bolivian CFEs. CFE managers argue that now the community has invested so much in the forest management plan, they feel very motivated to protect their resource from outsiders. Protection of forest resources from capture by third parties was the main objective for some of the communities in the first place.

However, CFEs allocated in the agricultural frontier or frontier with Brazil, where the pressure on land is high, experience major difficulties contesting external land claims and illegal occupation. Here, communities have to spend significant amounts of money (thousands of dollars) to defend their land rights. Some CFEs have already abandoned the effort to protect the land and manage the forest because they were simply unable to halt encroachment on their territory. As argued by Stocks (2005), without the assistance of the state these indigenous territories and CFEs are not likely to survive. Securing land rights is clearly not a 'single event' as Juul and Anderson (2002) have argued. This also constitutes an important lesson for the international organizations that gave many indigenous organizations financial assistance to

obtain their land rights but did not designate sufficient resources to help them protect this enormous investment (see also: McDaniel 2002).

Conclusion

As indigenous land and forest user rights are contested by society in general and hardly protected by the state, indigenous and farmers' organizations have embraced the concept of sustainable forest management to legitimize their land claims vis-à-vis multiple societal actors². Forest management plans are not only a guide to forest management but also a means to protect land rights and forest resources. However, for communities that managed to strengthen their land rights, the objectives of forest management changed over time from a 'strategic' to a 'productive' activity. The initial importance of the forest management plans for the consolidation of land rights and the investment of donor organizations in this process are important factors to consider when analyzing the institutional aspects that have influenced the constitution and functioning of the CFEs. In the following section the requirements for the elaboration of a forest management plan and the implications of these requirements will be presented and discussed.

5.3 Forest management regulations

The consequences of forest management regulations imposed by national governments on local communities have been mentioned by several scholars (Nygren 2005; Ribot et al. 2006) but hardly analyzed. Based on an extensive analysis of the forest policies of 18 countries and their effects on forest use by the poor, Hobley proposes to: "work to build evidence of the barriers produced by over-regulation – including the high levels of technical entry for local-people to produce management plans" (Hobley 2007: 65). In Bolivia, forest management regulations are the same for all actors engaged in commercial timber production regardless of the type of tenure they hold (forest concessions, private or communal land), the objectives of the enterprises and the scale of logging operations. Compliance with these regulations is costly and constitutes a high entry barrier for local communities that want to engage in commercial timber production. In this section the forest management regulations and their consequences for the CFEs will be discussed.

The regulations for the development of a forest management plan consist of three sections. The first section deals with the legal requirements related to the community's access to land and forest resources. The communities that have land titles or legally acknowledged land claims accepted by other parties do not encounter major problems complying with these requirements. As the process of getting land rights has been discussed earlier I will not discuss this topic here.

² This strategy has not only been applied by rural communities but also by private landholders who had to prove to the state that they were making a legitimate use of the land to regularize their land titles

The second section deals with the ecological or technical basis for the management plan. These so called technical requirements are similar for all parties that want to practise commercial timber extraction (enterprises, private landowners and communities). For indigenous CFEs a third section applies, consisting of so called socioeconomic requirements that deal with the organizational structure of the CFEs and the economic viability of their logging activities. Farmers' communities do not have to comply with this third section of requirements.

5.3.1 Technical requirements

All Bolivian forest management regulations are based on scientific ideas on forest management, including those for community based forest management. The argument used to convince 'the world' of the necessity that communities adhere to the same, scientifically based, forest management system (see also: Ribot 2004: 40 box 11) is that previously the communities did not commercialize timber, or at least not with the intensity they are doing now. Their traditional management systems are therefore considered inadequate to sustain commercial forest use.

Compliance with these technical regulations has both negative and positive aspects for the CFEs. The negative aspects include: (1) the high costs of gathering information and developing the plan, (2) the obligation to outsource the writing of the plan to a forest professional, (3) the generic character of the plan and (4) the redundancy of the information presented. The positive aspects are (1) that the evaluation of the technical requirements is similar for all, and (2) that compliance with these general regulations raised the legitimacy and self esteem of the CFEs.

Writing the technical part of the forest management plan requires a lot of information to be gathered from the forest. The CFEs have to compile a forest inventory and collect data on tree species, diameters and regeneration in 100 sample plots of 0.5 hectares dispersed over the forest. This information is used to determine the amount of timber that can be extracted per year without reducing the total biomass and species composition of the forest over time. The information has to be collected and analyzed using scientific methods for data gathering (stratified sampling), analysis (statistics) and reporting (GIS generated maps based on satellite images).

The first (and, as far as the author knows only) community that tried to prepare a forest management plan independently found that it was impossible to comply with the requirements without assistance, even though they followed all instructions. The community members measured all commercial trees and registered the information, created a map showing all the trees, defined all members of the future CFE, defined their future plans regarding the forest and sent the plan to the Forest Service. This CFE was requested to adapt the plan five times as it did not comply with the regulations and finally decided to hire a forest professional to draw up the plan for them. The manager of this CFE claims that their management plan is the most expensive in Bolivia. Whereas on average a forest management plan costs less than 1 US\$/ha., they spent over 3 US\$ per ha.

Consequently, for four years, all proceeds from timber sales went to paying off creditors. In 2001, however, this CFE received a prize from the Forest Service for being the best functioning CFE, mostly because they worked without extensive external assistance.

Due to the character of the requirements, the CFEs need the assistance of a forest professional to prepare the plan, and by law, an (expensive) forest engineer has to sign every single page of the document. In practice this means that the forest engineer draws up the plan based on the general forest management regulations, copies most of the text from another management plan and does not consider possible adaptations the community might want to make. For example, as the legal minimum cutting cycle is 20 years, all management plans propose to use a 20 year cutting cycle. Indigenous communities that might not want to log their forest that intensively, or that feel that this time span is not sufficient for the forest to regenerate, hardly have the option to discuss this with the engineer. Moreover, because the forest engineer writes the plan, the community members and even the CFE managers have little idea about its content.

Ironically, the information gathered during this costly forest inventory is hardly ever used to guide management operations. While most forest professionals in Bolivia might contradict this statement, of the 70 CFEs interviewed by the author, the managers of only one CFE had their forest management plan at hand; most others did not even know where theirs was kept. This does not mean that regulations on forest management are not observed. The main regulations are easy to remember and well known by all CFE managers. The cutting cycle has to be at least 20 years, 80 per cent of the population of a tree species may be logged, only trees with a diameter over the minimal logging diameter may be logged and the damage to the forests should be limited. In fact, most forest management plans are very similar and differ only in the list of harvestable tree species, which depends on the type of forest to be managed and its logging history. Considering the fact that local people are undoubtedly able to draft a list of commercial species present in their forests without an inventory, the information gathered during the forest inventory is redundant and imposes unnecessarily high costs on the CFEs.

A positive aspect of the technical requirements is that they are standardized and do not constitute a problem for engineers to comply with when writing the forest management plan. The technical requirements are evaluated in a similar way for all forest users without special treatment, in a positive or negative sense, for the CFEs. An analysis of the number of observations made by forestry officials during the approval process showed that significantly fewer observations were made on the technical section than on other sections of the management plans. This is an interesting observation, especially as the technical foresters evaluating these plans did not initially support community participation in commercial forest management. Apparently their faith in the rules, and the fact that a forest professional will be monitoring the logging operations, was sufficient to give the communities the benefit of the doubt.

Another positive aspect is that because the regulations are similar for all, the achievement of the communities complying with these regulations cannot be devalued by any suggestion that their regulations are easier to comply with. Compliance with these regulations has considerably changed the position of the CFEs vis-à-vis the Forest Service. CFE managers frequently assert that they are very proud to have the chance to show that they are able to manage the forest according to the state regulations. Some CFEs even explicitly invite the Forest Service to visit the community to monitor the logging plans and reports and view logging operations. In regions where the Forest Service never visits the CFEs, people feel rejected and not taken seriously, asking why the Forest Service visits the forest with timber enterprises but not with the community? CFE managers are proud to receive attention from the state as this gives them the feeling of being acknowledged and included in society. Having to comply with similar regulations gives one the right to consider oneself equal to others and this has considerably enhanced the self confidence of many CFE managers.

Although the technical requirements constitute a high entry barrier, CFE managers do not question the legitimacy of the existence of these regulations. This has several reasons. Firstly, the general application of these requirements and the emphasis put on compliance by all foresters give them general legitimacy. Secondly, most CFEs received external financial assistance and are not directly aware of the financial costs implicated in the development of the management plans.

5.3.2 Socioeconomic requirements

The third set of requirements (besides the legal and technical ones) are the so-called socioeconomic requirements. These requirements originate from a genuine concern on the part of the Forest Service about the distribution of benefits from timber sales within the indigenous territories or communities and were mainly meant to: (1) prevent misallocation of the benefits from timber sales by indigenous leaders, (2) prevent the assignation of forest areas needed for agriculture to timber production, (3) prevent economic failure, and (4) prevent or find ways to deal with internal conflicts.

This concern for malpractice and possible conflictive situations was not unfounded. Roper (2000), for example, observed the ‘disappearance’ of hundreds of thousands of US dollars that indigenous organizations received after selling mahogany trees that were felled by private enterprises before they were ordered out of the Multiethnic Indigenous Territory (TIM³). The responsible officer of the Unit of Coordination with Indigenous People and Organizations (UCPOI⁴) observed what happened, considered it important to prevent similar situations in the future and drew up these additional socioeconomic requirements for the indigenous organizations and communities.

³ TIM = Territorio Indígena multiétnico; multiethnic indigenous territory

⁴ UCPOI = Unidad de Coordinación con Pueblos y Organizaciones Indígenas

Figure 5.1 Organizational levels within indigenous territory



The requirements are based on the premise that indigenous communities and organizations hold collective land rights and that all collective landowners should participate in decision making on forest management and benefit equally from timber sales. To assure that this principle is observed, an extensive system of checks and balances was developed requiring that the delegation of authority and accountability as shown in figure 5.1, be laid down in multiple 'internal' documents. The general organizational structure promoted by NGOs and the Forest Service included a decision making body (the community members), an implementing body (the CFE managers) and a control body (the community leaders). When the community is part of an indigenous territory an additional layer of control by the umbrella indigenous organization was proposed as shown in figure 5.2. Additionally, the municipality was asked to testify that all community members agreed on the development of the management plan. All the documents needed to be signed by all parties involved and legalized by the issuing parties. In addition, a whole range of more specific requirements were added, such as the history of the community or indigenous people, land use patterns and conflicts over land and forest, calculations of the economic viability using three scenarios based on changes in timber prices for the next five years, a system of conflict resolution, a detailed account of benefit distribution in percentages etc.

Whereas several of these requirements touch upon important aspects for the functioning of the CFEs, a negative consequence of these regulations was that in practice they gave rise to ambiguity and excessive bureaucracy. Two aspects stand out. First, forest officers were inclined

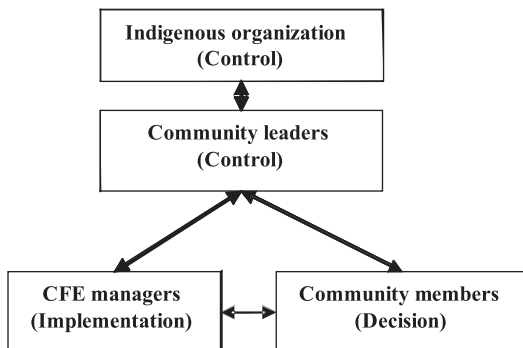


Figure 5.2 Proposed organizational structure

to base their evaluations on the literal requirements rather than considering the spirit behind the regulations. Thus, rather than stimulating the communities to discuss the implications of engaging in commercial timber production internally and to think about the appropriate way to organize such an undertaking, communities are evaluated on their capacity to elaborate, fill in, sign and stamp the right documents. Whereas some participation of the community leaders is inevitable – they need to sign and stamp the plan – due to the complexity of the socioeconomic component it has to be written by forest professionals and/or sociologists. Consequently, the community members, CFE managers and community leaders have no idea about its content.

Second, the ambiguity and multitude of the socioeconomic requirements mean that the results of the evaluation of this section of the management plan depend to a large extent on the personal interpretation of the evaluating officers. One officer who wanted to protect a specific community from abuse by a private enterprise delayed the approval of the plan for four years. Others come up with new and ever more detailed observations on the plans for no apparent reason. Most officers tend to ‘hide behind’ the requirements rather than clarifying the actual reason for their rejection of a plan. This causes confusion and stress among communities, NGOs and private enterprises alike, as they have to adjust, rewrite and improve the plans over and over again without result. To prevent more delays in the approval of a specific plan that got lost twice at the departmental office, a local forest officer decided to approve the plan himself. This action actually resulted in the official decentralization of the faculty to approve indigenous community management plans at the local level.

Whereas compliance with the technical requirements of the management plan has not generally caused any problems, compliance with the socioeconomic requirements has been complicated for most communities. As has been mentioned before, the number of observations made by forest officials when evaluating this section of the management plan greatly outnumbers the observations made on the technical section. Although no extensive data gathering activities are required (as for the forest inventory), the inconvenience of endless meetings, gathering all community members to sign documents, searching for and compiling all the required documents, paying for notaries and lawyers to legally recognize the internal documents and contracting a professional to prepare this section also constitute important economic costs. The lengthy approval process of the socioeconomic section by the Forest Service has caused frustration among all parties involved. Many communities have considered dropping out and have actually done so, because of the difficulties encountered in complying with the socioeconomic requirements.

Like the technical section, the socioeconomic part of the plan is hardly ever used in practice to guide community action. Moreover, once the plan is approved, the Forest Service hardly monitors compliance with the socioeconomic aspects to actually prevent community leaders

to benefit disproportionately from timber sales, which was, after all, the reason for requesting the extensive amount of internal contractual agreements. This section of the management plan could also be considerably simplified, and designed to stimulate ongoing deliberation in the communities on the relevant subjects and monitoring of CFE actions over time, rather than requiring the production of complicated documents that nobody ever reads.

Lastly, these requirements were designed for the indigenous organizations and communities specifically. When the Forest Service realized that farmers' communities also managed their forest resources collectively, farmers' communities were also obliged to adhere to these requirements. In practice the approval of farmers communities' management plans had already been decentralized to the local offices of the Forest Service and these new regulations were hardly taken into account.

Conclusion on requirements for the development of the management plan

Technical regulations on forest management constitute a major barrier for communities wishing to engage in forest management due to the cost of the forest inventory and the need to contract forest professionals to write the plan. Disconcertingly, the costly information presented in the management plan is not used to guide management activities. The management plan rather appears to be a legal document required to transform theoretical forest user rights into potential forest user rights; an approved logging plan converts the potential forest user rights into actual user rights. This argument is also valid for other commercial forest users but affects the CFEs more than private enterprises because the CFEs cannot pay the entry costs related to the management plan. The same argument can be used for the socioeconomic requirements. Compliance with these regulations makes the management plan even more expensive; they cause frustration in the community, unlike the technical requirements, and cause communities to refrain from the application of forest management practices. The rigid and literal application of the socioeconomic requirements by the Forest Service, moreover, does not contribute to the achievement of the overall objective to stimulate communities to take decisions on forest use in a democratic manner and to distribute the benefits from timber sales justly.

5.3.3 The proposed logging system

Like the regulations on forest management plans, the regulations on how to manage the forest are similar for communities, private landowners and timber enterprises. An important complication for rural communities is that the Forest Law prohibits the use of a chainsaw to process timber in the forest. The Forest Service argues that the processing of trees in the forest causes a lot of waste because the groove in the timber made by the chainsaw is much broader than the groove caused by sawmills. To prevent this waste of timber it is better to transport the logs to the sawmill or use portable sawmills in the forest. The implication of this rule is that communities are not allowed to apply artisanal methods for timber processing and extraction

and that the only possible harvesting systems are those that require mayor capital investments to construct roads and bridges and purchase or hire skidders, loaders and sawmills.

As the communities do not possess this equipment and are not likely to be able to purchase them any time soon, they depend on service providers to rent the equipment to them or extract the timber for them. In Bolivia harvesting equipment is scarce and of bad quality. Its low availability and quality is generally considered a major bottleneck for the development of the CFEs as well as for other small-scale forest enterprises. Timber extraction is therefore an activity that requires very inventive and persistent driver-mechanics operating the old and badly maintained machinery. The equipment rented out to the communities is generally poor quality and prone to breaking down frequently, slowing down logging operations. CFEs that have tried to land, transport and process timber on their own account have decided to outsource these activities to the traders and buyers again as the work and worries involved i.e. transaction costs, were of such magnitude that the additional earnings did not justify them.

CFEs thus have to search for timber buyers that have the capacity to extract the timber from the forest for them. CFEs that outsource the entire management plan lose the power to interfere with logging activities and have difficulty guaranteeing that logging activities take place within the frame of the law. As the timber enterprises select only the best timber and do not follow the regulations stipulated by the Forest Service, most CFEs do not like to outsource logging activities.

The high costs of the forest management plan and timber extraction make the CFEs dependent on external capital. To pay back this capital, they are forced to log much more intensively then they used to do when extracting timber to cover temporary monetary needs. While foresters consider that the forest should be logged more intensively out of efficiency considerations, and probably to serve the interests of the timber industry, some communities prefer to leave their capital standing in the forest to be harvested when the need arises.

5.3.4 Contractual arrangements with the Forest Service

The main characteristics of the contractual arrangements between the CFEs and the Forest Service are presented in table 5.1. The arrangement consists principally of an authorization. The community promises to manage their forest in a sustainable way and in turn receives permission to log timber from the specified forest. Logging permission can be based on a general long term forest management plan and yearly logging plans. While the rights and obligations of the CFEs are specified in the contractual arrangement, those of the Forest Service are specified in Forest Law and its regulations. Indigenous communities' forest management plans initially had to be approved by the national office of the Forest Service but this responsibility was later decentralized to the departmental and local offices. Farmers' forest management plans have been approved by the local offices of the Forest Service from an early

Table 5.1 The characteristics of the contractual agreements between the CFEs and the Forest Service

Subjects Forest Service	
Type of contract	<ul style="list-style-type: none"> • Authorization for specific CFE
Forest Service's objective	<ul style="list-style-type: none"> • Sustainable forest management • Timber production • Equal distribution of the benefits of forest resources among population
Type of partners	<ul style="list-style-type: none"> • National, regional and local (UOB) offices of the Forest Service
Product exchanged	<ul style="list-style-type: none"> • Commercial timber logging and forest management system
Document agreement	<ul style="list-style-type: none"> • Approved forest management plan and annual logging plans
Duration of agreement	<ul style="list-style-type: none"> • Minimum 20 years
Clarity of rights and obligations	<ul style="list-style-type: none"> • Rights and obligations of CFEs legally clear • Rights and obligations of the Forest Service not specified in contractual arrangements but in laws and regulations
Compliance mechanism	<ul style="list-style-type: none"> • Control through forest engineers responsible for the implementation of the forest management plan • Monitoring of logging plans, logging reports, transportation permits and field visits • Use of authority • CFEs can appeal to higher level authorities and the Commissioner for Public Rights

stage. Approval of logging plans takes place at the local level as well. The agreements between the Forest Service and the CFEs are rather one-directional; the state defines, monitors and controls, the CFEs accomplish.

5.3.5 Concluding remarks on forest management regulations

In this section several state institutions regarding community forest management have been discussed. It has been shown that forest management regulations have offered opportunities to farmers and rural communities to engage in commercial timber exploitation. However, regulations are similar for farmers, communities and private timber enterprises, despite their different financial capacity and objectives. The Bolivian state gave the communities commercial forest user rights as long as they copy the system of the private forest enterprises, which is still considered the only legitimate way to manage a forest (Pacheco 2007).

It has been shown that the complying with the technical regulations of a forest management plan requires specialized knowledge and, depending on the size of the forest area, considerable investment. The information gathered is however not very useful for guiding management activities and the investment seems therefore redundant. The forest officers evaluating the socio-economic regulations often interpret the regulations literally rather than considering the spirit with which they were written, which often causes delays in the approval of the community forest management plans. After approval of the management plan there is no further monitoring on these socioeconomic aspects and the purpose of these regulations, preventing disproportionate capture of the benefits by community leaders, not followed up.

⁵ UOB = Unidad Operativo de Bosques = Operational Forest Service Unit

Harvesting regulations moreover constrain the way the CFEs can develop as the extraction of logs requires the use of heavy machinery which increases their dependency on external capital and services provided by private enterprises. CFEs therefore have limited potential to move up the production chain and benefit more financially. Individual forest officers may obstruct or facilitate the constitution and functioning of the CFEs depending on their personal conviction.

5.4 Market institutions

As mentioned in the introduction, the contractual arrangements established between the CFEs and the timber buyers are likely to reflect the effects of both formal and informal institutions. While some formal institutions determine what one is able to do, other institutions create the necessary conditions for individuals to undertake activities from which they would otherwise refrain (Williamson 1998). Contracts are a good example of this. The fact that contracts represent a binding promise between business partners encourages individuals to engage in exchanges that they would otherwise not perform due to the risk of being cheated. Contracts are therefore considered a kind of formal institution that, through the establishment of explicit liabilities, provides incentives and sanctions to the actors involved to comply with the contractual terms. Contracts alone, however, do not provide total security to an exchange. Specific institutional factors that are considered to influence the contractual relations between the Bolivian CFEs and the timber buyers are: (1) credit availability, (2) contract enforcing mechanisms, and (3) trust and the relationship between exchange partners (Fafchamps 2004). These aspects will be discussed in the following section.

5.4.1 Credit availability

The CFEs do not have access to credit from a formal financing entity to finance their management plans and logging operations. According to Pacheco “The lack of rural financial markets has been identified as one of the main factors contributing to rural poverty in Bolivia” (Pacheco 2001: 24). He argues that after the liquidation of the state bank which supported the agriculture sector, the state tried to increase the access of the rural population to formal credit through government-administered credit lines, public and commercial lenders and NGO lending programs but no consistent policies exist that provide access to productive assets such as credit and technology. The importance of credit availability for the development of small and medium enterprises is also stressed by McCormick et al. (1997).

Rural communities have been given the right to commercialize forest resources but without access to the credit they need to comply with costly government regulations. The amount of capital investment needed to initiate logging activities depends on the location of the CFEs (distance and accessibility) and the size of the management area. Harvesting from isolated forest areas requires major investments in roads, and the bigger the management area, the costlier the management plan and logging operations in absolute terms.

Table 5.2 Means of financing the management plan and logging activities

#	Financing management plan		Financing logging activities
1	NGO	NGO pays and develops management plan with varied input from CFE	Initial financial assistance from NGO later on private enterprises only
2a	Private enterprises	Enterprise pays and develops management plan	Private enterprises
2b	Private enterprises	Enterprise gives advance payment to CFE to develop management plan	Private enterprises

To enable the communities to overcome their capital deficiencies, the Forest Service allowed them to start logging timber based on a annual logging plan⁶, so that they could use the income from timber sales to finance the management plan⁷. As a logging plan is considerably cheaper than a management plan this option has been used by several communities. Frequently, however, the benefits from a first timber sale are insufficient to cover the costs of writing the management plan. Communities might drop out of the process altogether, with no sanctions involved⁸, or search for additional financial resources.

To have access to the required capital, communities have to engage in contractual agreements with external parties. The only parties investing in forest management plans are NGOs (#1, table 5.2) and private enterprises (#2, table 5.2)⁹. Private enterprises can: (1) finance and develop the entire management plan and therewith gain the right to log timber from the community forest (# 2a, table 5.2) or (2) provide the CFE with an advance payment to develop a logging plan and let them pay the loan back in timber (#2b, table 5.2). CFEs using this approach often search for some additional funds from private lenders (often NGOs, personal contacts, or even forest officers) and uses the benefits from timber logged with small-scale logging authorizations (the semi-legal subsidizing the legal).

Although the three options are presented as alternative financing mechanisms, that does not mean that all communities have the option to choose between them. NGOs typically select the regions and communities they want to work with, communities that are located in different areas or that are not selected by the NGO cannot access the funds administered by the NGOs. Private enterprises are more flexible but will not make the same kind of investments in all communities. They will make major investments (>20,000 US\$) in: (1) communities that have good quality timber (especially mahogany, oak, cedar), (2) communities that are difficult to

⁶ Refers to a logging plan 'a cuenta de' or on account of a forest management plan

⁷ Resolutions N° 16/2001 and N° 113/2001 approve the use of annual logging plans on the account of forest management plans for indigenous and farmers communities respectively

⁸ As far as I know, no CFE has ever been sanctioned for dropping out

⁹ In some exceptional cases the departmental government or municipalities have financed part of the management plan, these cases are an exception however and will not be mentioned further

access and require major investments in infrastructure, (3) communities located in areas where timber demand exceeds the provision of legal timber, and (4) communities that are expected to comply with the contractual arrangement defined by the private timber enterprises. This last condition has also been observed by McMillan and Woodruff (1999) who observed that enterprises would only invest in communities that did not have access to alternative providers to ensure compliance.

To access the required capital to develop a management plan, the CFEs engage in relational contracts with NGOs and private timber enterprises. Depending on the circumstances CFEs engage either in: (1) long term, inflexible and often unfavourable timber sale contracts with private enterprises that pay for, elaborate and implement the management plan (# 2a) or (2) short term timber sale contracts with private enterprises when the community maintained independence because NGO assistance enabled them to avoid being indebted to the enterprise (# 1) or because they borrowed money to write the management plan and paid back the loan (# 2b). The type of financing received thus determines the type of contracts the CFEs can engage in at a later stage. The importance of the character of the contracts between CFE and private enterprises has also been mentioned by Vermeulen et al. (2003) who argue that communities that are not too trapped into unfavourable contracts can profit from more market involvement. Lyon and Porter (2007) mention that informal sources of financing are vital to keep trade moving although they can be used exploitatively if individuals become tied into debt relations over many years.

Asset specificity is high for the private enterprises investing in the CFEs; all investments i.e.: the establishment of a trade relationship with the community/CFE, the management and logging plans and access roads, are site specific and would be lost if the contacts were breached. The duration of these contracts is, therefore, generally fixed on the validity of the management plan, i.e. 20 years. Written contracts almost always exist because the Forest Service requires them. The existence of such a legal requirement is, according to Morsello (2006), an important factor in allowing for fairer negotiations. Most long-term contracts, however, are unspecific and private enterprises are able to interpret them freely, legitimized by the Forest Service. The forest officers in the regions where this type of contracts exists (mostly, but not exclusively, in the north of Bolivia) are often said to facilitate the access of the private enterprises to timber without considering the interest of the rural communities or the forest. The pressure private enterprise exerts on the forest officers in these regions is so high that they find it difficult to resist.

Enterprises make lower and less risky investments in CFEs with small management areas and with low quality timber because the potential return on investments is low. They also make low investments in CFEs located in easily accessible areas and those in contact with NGOs, because they can use cheaper and more easily accessible logging authorizations and because they have

too many options of who to sell to. Moreover, when NGOs are present they are expected to finance the plan and the enterprises may fear their interference. While the enterprises may not write the management plans for these communities, they do provide credit and/or advance payments for the preparation of logging plans and small (200 – 3000 hectares approximately) management plans. Credit provision is less risky because it involves less capital, the time-span for reimbursement is shorter and the enterprises making the loan have the theoretical option to log the trees themselves if the CFEs do not deliver.

Whereas the CFEs have different options for the financing of the forest management plans, logging activities are always financed by the benefits from timber sales, with or without advance payments from the timber buyers. Advance payments are needed, in most cases, to initiate logging activities (to open up roads and landing places and start logging). CFEs working with NGOs might receive some financing to cover these costs initially, but NGOs generally consider that, for sustainability and ownership reasons, the CFEs should pay operational costs themselves from the benefits of timber sales.

5.4.2 Trust and relationship

It has been shown that where third party enforcement is not available, and even where it is available but is costly to use, the development of trustful relations between exchange partners is an important mechanism to overcome the threat of contract breaching. Lyon and Porter (2007), however, found that the effectiveness of trust-based relations varies widely and they emphasize the presence of moral norms as a basis of building and maintaining personalized trust. The sanctions or motivations to comply with moral norms may come in the form of shame, peer pressure, loss of reputation, physical threats or drawing on obligations (Scott 1976 in Lyon and Porter 2007). Individuals are pressured into keeping to norms by those around them. Pressure can also be exerted through forms of authority and different forms of association.

The rural, mostly indigenous, population in the lowlands of Bolivia have lived in subordination to the political and economic elites, including the church, since the occupation of Bolivia by Spain. The indigenous population was initially 'civilized' by several different churches, forced to settle in communities and practise agriculture instead of living by hunting, gathering and shifting cultivation. Later on, political and economic powerful elites took over the dominance over the indigenous communities from the churches, and enslaved them to gather quinine and rubber in the north of Bolivia and to work on agricultural estates in the south east. Some of the communities interviewed were freed from these agricultural estates no more than 15 years ago. Others have withdrawn ever further into the forest to avoid third party dominance (Urioste and Pacheco 2001).

As explained in chapter 4, the exchange relationship between the communities and the timber buyers developed long before the communities received legal land and forest users' rights.

Timber buyers considered the forest to be of open access and logged trees making no or minor payments to the nearby communities. Timber buyers frequently did not recognize the ownership claims of the rural communities to the land and forest resources; many still do not. Moral norms on how things 'ought to be' and what is 'unacceptable', are based on previously shaped exchange relationships. It is therefore not surprising that many CFEs have had bad experiences, especially first experiences, trying to sell their timber on the timber market. Frequently, timber buyers would refuse to pay for the extracted timber, would renegotiate prices or volumes or would disappear with the timber altogether. Some timber buyers considered that the rural communities, "did not know how to benefit from the forest anyway", "did not really need the benefits from the timber sales" or that "the communities receive a lot of benefit from the NGOs unlike us (the market actors)" which they felt justified contract breaching. On the other hand, some local timber buyers have been classmates of members from timber selling communities for years and they have developed a more paternalistic attitude towards the CFEs, maintaining the timber prices as low as before but without further opportunistic behaviour.

The historical relationship of dominance in Bolivia combined with an institutionalized discrimination against the indigenous population sets the basis from which the CFEs have to develop exchange relations with timber buyers who generally belong to the better-off local elites.

5.4.3 Contract enforcing mechanisms

One of the main market institutions influencing the type of contractual arrangements is the possibility of enforcing contracts (North 1990). Whereas in the western world exchange is generally backed up by the ability to engage in third party enforcement, in many developing countries third party contract enforcement might not exist or be easily accessible. In Bolivia the legal framework for contract enforcement is available but expensive and unreliable to use for the communities.

Fafchamps (2004) claims that little is known about the institutions that support market exchange and how markets structure themselves over time. He argues that few economists go beyond the idea that an effective court system is necessary and sufficient for market transactions to take place. Much of economics continue to rest on the assumption that economic transactions are anonymous and economic agents perfectly interchangeable, even though social scientists have insisted on the personalized nature of much market exchange (Granovetter 1985).

The type of enforcement mechanisms that are available to exchange partners strongly influences the contractual arrangements between exchange partners. Fafchamps, for example, demonstrated that a lack of enforcement mechanisms leads to a feeling of insecurity among traders, who then fall back on a: "flea market mode of transacting: inspect the good on the

spot, pay cash and walk away with it” (Fafchamps 1996: 444). The building of trustful relations between exchange partners is frequently mentioned as an important strategy to overcome uncertainty. Gabre-Madhin (2001), for example, observed that traders in Ethiopia either choose partners they know well or engage a broker; the presence of brokers facilitating anonymous exchange between traders. Due to the high capital investments required for timber logging, the CFEs cannot engage in a flea market economy, although they would like to do so, and two CFEs are experimenting with this method of trading. Due to the required investments the CFEs are forced to establish contractual arrangements with buyers and over time they have worked out alternative ways to prevent contract breaching.

According to Stone et al. (1996: 120), the fact that enterprises are prepared to extend credit “demonstrate[s] an important institutions: an effective information system, which places a premium on an untarnished reputation – which largely obviates the need for effective enforcement mechanisms in the case of default”. It is questionable whether the information system is the only institution that enables private forest enterprises to extend credit to the CFEs however. Informal credit provision or advanced payments has enabled trade and production of quinine, rubber, palm hearts, Brazil nuts and timber in the Bolivian rural areas since the 19th century by the system of ‘habilito’¹⁰ and has become an institution in itself (Bojanic 2001). He defines the habilito system as: “the set of rules (written and or spoken) governing an advance cash payment of goods (mainly foodstuffs) for a labour service to be fulfilled in the future” (Bojanic 2001: 92).. He moreover argues that the habilito system is applied to almost all labour transactions in the Amazon basin and has even been extended to urban economic sectors such as housekeeping, crafting and construction.

The habilito system is often portrayed as a mechanism applied by the patrons to ensure labour availability by creating a debt relation through the overpricing of provisions. Stoian (2005), however, considers that without this system production could not have taken place in the Amazon basin. He argues that the system established a notion of mutual responsibility in the region as both parties need each other and he observes that the relation between the patrons and labourers goes beyond simple economic transactions but is embedded in reciprocal social relations, such as *compadrazgo*¹¹.

In conclusion, the readiness of private timber enterprises to extend credit to the communities is embedded in an existing pattern of informal credit provision for productive purposes in Bolivia. And within this system, reciprocity and the establishment of personal relationships are used to avoid contract breaching. Short-term and long-term contracts between communities and timber

¹⁰ Literal translation in English of *habilitar*, the verb the term *habilito* originates from, is to give authority or to give power. In the context of the advanced payments made to producers this could be redefined as ‘enabling’.

¹¹ Well known system of fictive co-paranthood.

enterprises, however, are based on different enforcement mechanisms and reflect the degree to which community members have been able to create some bargaining space for themselves.

Contrary to the expectations, long term contracts are vague regarding all aspects related to the transaction. This makes it extremely difficult to contest these contracts as they only determine that a certain community represented by a certain person sells all timber in their community forest to the buyer. A specific feature of these contracts is that the private enterprises do not establish an arrangement for the communities to pay off the credit provided by the enterprise, but rather keep the communities in an everlasting state of indebtedness, reducing the timber prices to pay off the, generally unknown, capital investment made. Long-term contracts are not meant to be backed up by any legal entity but are rather backed up by the social institutions that favour private forest enterprises over (unproductive) forest use by rural communities. Especially in the north of Bolivia, the powerful political and economic elite dominates politics as well as the state agencies (among others the Forest Service) and they fully back these contracts. But even the indigenous and farmers' organizations, supposed to defend the rights of the community members' are openly paid off by these elites and implicated in the system.

Short-term contracts, on the other hand, are based on more equal relations between the timber buyers and the CFEs and generally specify the timber species to be bought, an assessment of the volume to be extracted, the price per species and lately also the time-span for extraction of the timber for the buyer. Short-term contracts depend on relational aspects such as frequent interaction, trust, reputation, etc., but the major risk reduction element is exactly the short time span and specificity of the contract. If a buyer does not comply, the CFEs lose at most the timber from a single logging plan and have the chance to improve timber sales the following year. This system in itself obliges timber buyers to comply with the CFEs otherwise they will lose access to timber. This system works especially well in areas with sufficient buyers and where CFEs have established a regional network to discuss the attitude of certain buyers.

5.4.4 Contractual arrangements with the timber market

Table 5.3 presents the main characteristics of the contractual arrangements between the CFEs and the market actors. The contractual agreements with the market are very diverse. The objective of all timber buyers is to have access to timber for financial benefit. Timber buyers may be the timber industry, local sawmills or intermediaries. Written contracts are normally used but are difficult to enforce legally. Contracts differ in length (short and long term), the quality of the timber (high quality, hardwood and softwood) and the kind of products (standing or felled trees and processed timber) exchanged. Most contracts include the provision of additional services, such as credit, equipment and professional services. Contracts can be very specific and very general and have to be legally approved by the Forest Service for the indigenous communities. Compliance mechanisms used by both the CFEs and the timber buyers are informal and mostly relational.

Table 5.3 The characteristics of the contractual agreements between CFEs and the market actors

Subjects	Timber buyers
Type of contract	<ul style="list-style-type: none"> • Private timber sale contract with specific CFE
Timber buyer's objective	<ul style="list-style-type: none"> • Access to timber • Financial gains from timber trade
Type of partners	<ul style="list-style-type: none"> • Timber industry • Local sawmills • Intermediaries • Service providers including forest professionals
Product exchanged	<ul style="list-style-type: none"> • Credit • Timber (high quality, soft and hard timber; standing trees to sawn timber) • Harvesting equipment • Professional services
Document agreement	<ul style="list-style-type: none"> • Formal contract
Duration of agreement	<ul style="list-style-type: none"> • Ranges between 1-20 years
Clarity of rights and obligations	<ul style="list-style-type: none"> • Contracts may be very specific and very general • Depending on specificity, include rights and obligations of both parties • Most contracts approved by the Forest Service • Most contracts drawn up by lawyers and registered by notaries
Compliance mechanism	<ul style="list-style-type: none"> • Informal mechanisms mainly • Legal enforcement theoretically possible but never applied in practice

5.4.5 Concluding remarks on the timber market

CFEs that want to commercialize timber have to engage with timber buyers. Due to the high costs of the elaboration of management plans, logging plans and the capital intensive logging systems required by the law, timber sales almost always require the establishment of contractual agreements that include the sale of timber as well as the provision of advance payments or credit provision and the provision of a variety of services by the market. The relations between the CFEs and the timber buyers have generally been established long before enactment of the 1996 Land Reform and Forest Law. The type of relations between the CFEs and the market has, especially initially, been defined by the historical relations of subordination and discrimination between timber traders and community members. Those accustomed to accessing the forest freely have found it difficult to accept the newly established position of farmers and community members as resource owners. The change in endowments in possession of rural communities has changed their position vis-à-vis the timber traders. When the CFEs are not greatly indebted to the timber buyers, they have managed to negotiate beneficial timber sale contracts, especially in regions where the demand for timber and the number of timber buyers are high. Where CFEs have entered in long term contractual relations with the enterprises because the enterprises financed the management plan, timber prices are low. Old patronage relations seem to be reproduced in the relation between timber buyers and the highly indebted CFEs. To be able to enforce the timber sale contracts both parties try to establish direct and personal relations with each other and use whatever means is available. Contract enforcement through the formal system is hardly used however.

5.5 Institutional aspects of NGO assistance

NGOs have had a major influence on the constitution and functioning of the CFEs in Bolivia. This section discusses the activities of the NGOs and uncovers their motives for acting the way they do. Mosse (2004), however, argues that “whether disciplining or empowering in intent, the operational control which bureaucracies or NGOs have over events and practices in development is always constrained and often quite limited” (Mosse 2004: 646). He found that not so much the policies of a project or NGO but rather the multi-layered complex of relationships and the culture of organizations influence development practices. NGOs are, as much as other actors and organizations, embedded in an environment constituted by formal and informal institutions which guide decision making and project implementation through constant interaction and negotiation. Interaction with NGOs is therefore likely to generate transaction costs in a similar manner as interaction with other actors. In this section the institutions underlying NGOs practices that have a direct impact on the constitution and functioning of the CFEs will be presented and their effects discussed. Only the NGOs that interact directly with the communities have been considered and not the donor organizations that predominantly interact with the communities indirectly through the implementing NGOs. Four aspects will be discussed: (1) the way the NGOs define their activities, (2) the way NGOs define the location where they work, (3) the way NGOs define the people they work with, and (4) the character of the advice NGOs give to the CFEs.

5.5.1 Choice of activities

It is important to note that most NGOs adhere to the Forest Law and its regulations for the project proposals they present to the communities. This sounds more logical than it is. After all, the forest management systems proposed by the Forest Law require major capital input from the communities, first for the management plan and subsequently for logging practices. Communities do not have the required capital and therefore have to depend on external actors to provide it. NGOs focussed on improving local people’s livelihood might not be eager to propose such a system to the communities. Some NGOs¹² have indeed tried to negotiate with the Forest Service to accept alternative forest management systems that were more adapted to the size of the communal forest area and the communities’ capacity and aspirations. Some alternative approaches have been accepted in practice, but in theory the logging system has never been adapted.

There are two main reasons why NGOs have adhered to the regulations on forest management established by the law. First, forest regulations have supposedly been defined in cooperation with all stakeholders and are thus legal and legitimate. Second, the main objectives of

¹² Especially IPHAE, CIPCA and Jatun Sacha that have been working with farmers communities to manage smaller forest areas.

the NGOs supporting forest management were not poverty alleviation but rather the strengthening of indigenous land claims or sustainable forest management itself. To achieve these objectives, it was better to place large areas under forest management which could then only be made productive by applying the capital intensive logging systems proposed by the law. Consequently, the main focus of NGOs assisting forest management activities has been directed at communities owning large tracts of forest, mainly indigenous communities and organizations, and lately in the north of Bolivia also farmers' communities owning large forest areas. Small-scale forest management activities have been considered only by NGOs with very specific objectives, such as the reduction of coca leaf growing in the tropics of Cochabamba and the Yungas of La Paz by the FAO.

The activities implemented by NGOs in support of the development of forest management plans has initially been similar for all NGOs, despite their different background and objectives. NGOs initially focussed on financing and preparing the forest management plans and were, inevitably, engaged in the struggle over land rights which was a precondition for the approval of the management plan. Once the plans were approved, the NGOs realized that the major challenge was not, as initially considered, their approval, but rather their implementation. NGOs then switched their focus to the training of the CFE managers and community members and started advising them on forest management techniques, accountability, administration, marketing and contract elaboration. Hereafter, approaches started to differ, while some NGOs continued financing further development of the CFEs, others directed all their attention to training and advisory practices. The consequence of these differences in NGO policies will be discussed in the following section.

Financing

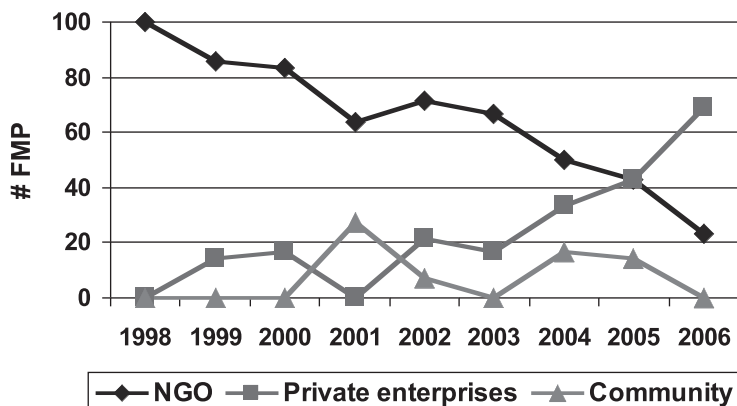
International ideas and discourses on community forest management motivate the NGOs to 'deliver' CFEs that are socially, economically and ecologically sustainable. Initially, the decision of NGOs to redirect their focus from financing and developing management plans to training and advising the newly founded CFEs was a logical step to guarantee their survival and the investments made by the NGOs. The NGOs have, however, insisted on this strategy ever since because the existing CFEs did not function as expected, even though an increasing number of communities have requested NGO assistance to develop new management plan. Rather than the entire community, only a few members of the community were directly involved in the CFEs; the CFE extracted only a small part of the allowable timber volume; and benefits were used on community festivities rather than structural improvements to community members' livelihoods. Moreover, other parties that did not believe in the capacity of rural communities to run a forest enterprise started to question the NGOs work when observing these 'failures'.

NGOs thus felt they had to continue working with the CFEs until their functioning was in line with expectations (socially, economically and ecologically sustainable and responsibly

managed). Some NGOs also doubted the feasibility of the CFEs and were not prepared to replicate a model that was considered to be a failure. Li (1999) and Mosse (2004) both recognize the political importance of success for legitimacy of the NGOs; success, they argue, is fragile and failure a political problem.

The consequence of the switch in focus of the NGOs from financing management plans to providing advisory services and training, however, was that ever more management plans were financed by the private enterprises and the communities themselves. Figure 5.3 shows that of the total of 100 community forest management plans approved from 1998 until 2006, the percentage of management plans financed by NGOs reduced from 100 per cent in 1998 to 20 per cent in 2006. The number of management plans financed by private enterprises over that same period increased from 0 per cent to 70 per cent. Ten per cent of all 100 management plans have been financed by the communities themselves through advance payments, loans and timber sales.

Figuur 5.3 Percentage of forest management plans (FMP) financed by NGOs, private enterprises and communities (n=100)



At the time of writing (2006), only a few NGOs finance management plans. First, the recently started second phase of the PROMAB¹³ project in the north of Bolivia proposed to finance 60 management plans for the extraction of timber and/or Brazil nuts in five years. In this region, NGOs have hardly engaged in community forest management before but many communities have signed contracts with private enterprises for the extraction of timber. Second, a major project of the FAO directed at diminishing the production of coca leaves in the Yungas of La Paz started financing forest management plans as an alternative productive activity¹⁴. The dynamics in these coca leaf production areas is quite different from the rest of the Bolivian lowlands though, and these communities have not been included in this study

¹³ PROMAB = Programa Manejo de Bosques de la Amazonía Boliviana

¹⁴ The FAO (Jatun Sacha) used to work in the tropics of Cochabamba where they financed a great number of small management plans of farmers communities mainly. They are now (2006) withdrawing from this region.

Communities that did not receive NGO financing until 2003 are not likely to receive financing by the currently active NGOs and projects unless they are part of the PROMAB and FAO projects mentioned above. Communities that have somehow learned about the possibility of setting up a CFE and that have access to additional information and some assistance (from neighbouring CFEs, associations of CFEs, farmers'/indigenous organizations, cooperative forest officers, forest consultants or an NGO willing to give advice) have managed to develop and finance a forest management plan, make up only 10 per cent of all CFEs. Other CFEs interested in forest management activities received financial assistance from private enterprises or use small-scale logging authorizations.

Additional financing by NGOs for production can greatly enhance CFE development. One community that had been donated a tractor when they started to implement the management plan has always been able to sell the timber on the roadside, ready for buyers to collect. The CFE has sufficient capacity to operate the tractor, although its maintenance is an everlasting point of discussion. Several CFEs want to have more control over the production process to reduce their dependency on the service providers and to establish themselves as a 'real' forest enterprise carrying out both the logging and processing of timber. NGOs have generally been cautious about making investments in the means of production. Multiple examples exist of unused sawmills and destroyed machinery and they do not want to repeat that experience (see: McDaniel 2003a). Whereas initially CFEs thought that buying sawmills would solve their problems with the market (this was the main comment during the interviews in 2004), in 2006, the CFEs considered that the possession of harvesting equipment would improve their production process and agreed with the NGOs that operating a sawmill might not be in their best interest. One CFE is actually leasing a sawmill and has been producing well over the last two years. A major financing project, 'Fundación Puma' financed by USAID, has recently started to finance sawmills in communities with management plans and the left wing government of Evo Morales proposed to create service centres in rural areas where farmers and CFEs can access equipment for productive activities. The results of these initiatives might be analyzed in a few years time.

Training and advice

Depending on the community, a kind of optimum period of NGO assistance seems to exist. Just financing and developing the forest management plan is not enough, some assistance is needed to get the CFE running and operational. Stearman (2006) relates the possible negative consequences if a community is pushed into developing a management plan and even forest certification and abandoned without further assistance after a few years. After four to five years, most CFEs have a sufficient idea of daily practices and enough background information and experience to develop their own entrepreneurial style if given the chance, albeit not as sophisticated as those proposed by the NGOs. McDaniel (2003b) points out that the different management styles of NGOs, which follow a western hierarchical model, and the indigenous

system, with its fluid consensus-based style, might lead to clashes. NGOs that insist on imposing their principles (such as inclusion of women, 100 per cent participation, electoral system, etc.) on the CFE run the risk of being discharged after working with the CFE for five or six years. CFEs will not accept further interference on internal issues but may still accept and request advice, technical assistance and mediation with other parties and be willing to participate in courses and events.

NGOs that have been working with a certain community on a wider range of subjects over a longer time period are not easily discharged. Due to the prolonged interaction between the NGO and the communities, their relation has become institutionalized, with mutual rights and obligations. The NGO has become integrated in daily life issues from the communities and the regions they operate in. Even very practical issues may have been adapted to the presence of such an NGO. In one community, for example, the public transport system stopped serving one community because people could travel for free with the NGO. The bus driver quit the service to that community because if the NGO arrived before him he would not earn anything.

NGOs that interfere extensively with the operation of a CFE might feel tempted to revoke decisions made by the community or CFE managers. This might cause the managers to lose faith in their capacity to take decisions independently and lose credibility vis-à-vis the community. Decision-making on certain issues becomes an NGO rather than a community matter. Whereas it might not be as easy for the community members to hold the NGO accountable, McDaniel (2002: 390) shows that communities have developed strategies to 'convince' the NGOs when necessary. He mentions, for example, the 'access card' held by the communities. After all: "a development organization or project without an area to work in does not continue to receive funding for very long". Also de Certaeu (in: Mosse 2004: 645) argues that: "While beneficiaries may consent to dominant models using the authorized scripts given them by projects – they make of them something quite different".

The fact that most NGOs have focussed on improvement of the functioning of the CFEs through training and advice and not on financing new management plans and production means implied that: (1) communities that were not initially selected to be financed by an NGO were unlikely to be financed later on, even if they requested financial assistance, (2) CFEs that disliked the constant interference with internal affairs and had no additional dealings with the NGOs decided to continue without extensive NGO assistance, and (3) CFEs that have coalesced with the NGO accepted their interference and, to a certain degree, left decision-making to them.

Lastly, NGOs have engaged extensively in mediating contracts and conflicts between all possible stakeholders. In this process, the vague line between advising and mediating on one side and taking control of CFE affairs on the other may have been crossed frequently in order

to speed up the process and demonstrate visible results. As Stearman (2006) showed, the tendency of some NGOs to force decisions may have had visible results at the time, but could hardly be considered successful later on.

NGOs that have offered communities and CFEs opportunities to meet and interact, especially at the regional scale, have created a resurgence of interest and an overflow of experiences to other communities in the region. Especially in the Guarayos province, the Indigenous Forest Association (AFIG) and the Inter-communal Forest Committee in San Ignacio de Velasco have had an important impact on the dissemination and replication of forest management initiatives among communities and interest groups in the region. Although these initiatives did not provide funding to develop new management plans they did provide information and credit facilities that could be used by communities to establish their CFEs and negotiate better with private enterprises.

These initiatives have provided a low barrier focal point for communities interested in forest management but also for government agencies, timber buyers and donor agencies. Communication has been an important element of the legitimization and institutional recognition of the CFEs at the regional and national scale. As mentioned by Mosse (2004): “the ethnographic question is not whether but how development projects work; not whether a project succeeds, but how success is produced. One thing is evident: What is usually more urgent and more practical is control over the interpretation of events (Mosse 2004: 646).

5.5.2 Choice of location

It has been shown that the Bolivian CFEs depend strongly on the presence of external capital to be able to develop a forest management plan. Some CFEs received financial assistance from NGOs to write these plans; others did not. In Bolivia, over 30 NGOs have some relation with the CFEs, either indirectly as financing organizations or directly as implementing organizations. Figure 5.4 shows the source of financing of the CFEs located in the departments Santa Cruz, Beni, La Paz and Pando.

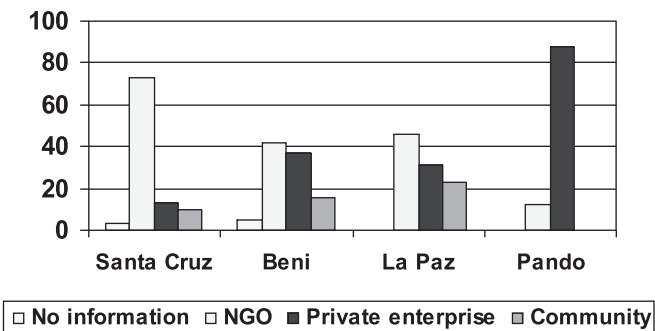


Figure 5.4 Percentage sources of financing of FMP (n=100) per department

These figures are based on information on all 100 CFEs with approved management plans in Bolivia at the end of 2006. In Santa Cruz the percentage of communities financed by NGOs is significantly higher than in other departments. In Pando, the majority of CFEs are financed by private enterprises, whereas in La Paz and Beni the percentage of CFEs financed by private enterprises, NGOs and the communities themselves is similar.

Sixty-five per cent of all CFEs received financing from NGOs that previously worked with the communities on other issues such as the consolidation of land rights and agricultural production. Another ten per cent received financing from NGOs that had been working in the regions already but not with the specific communities. These NGOs included forest management activities in their existing programmes when the opportunity arose. As mentioned in the first section of this chapter, NGOs working on the establishment and strengthening of indigenous land rights applied forest management activities as a strategy to legitimize and strengthen land claims. Their objective was therefore to accommodate as much forest as possible under the management plan. Most management areas of indigenous CFEs, therefore, cover extensive forest areas. NGOs working on agricultural production, on the other hand, considered forest management an interesting additional income generating activity and generally worked with single communities and smaller forest areas. Only the newly established BOLFOR project¹⁵ and the organizations created by the project¹⁶ aimed at promoting sustainable forest management out of environmental considerations did not have previously established relations with the CFEs they financed. The project did however look for partnerships with existing NGOs to co-finance forest management plans in the areas where the other NGOs were active.

Previously established patterns of assistance thus had a major impact on which communities were eligible for financing, as has been argued by Bebbington (2004). In the region with the highest NGO density (Santa Cruz), most forest management plans have been financed by NGOs. Accessibility may have been a factor that influenced NGOs to work in Santa Cruz rather than in the considerably less accessible other lowland departments but no further inquiries have been made on this topic. Additionally, some of the NGOs working in the Beni and Pando departments deliberately choose not to include forest management activities in their programmes. An NGO located in Beni mentioned that timber extraction in that region was mostly illegal and the economic and political power of the illegal loggers so strong that they preferred not to interfere – especially as many of the indigenous leaders and community leaders they worked with were involved in illegal timber logging as well (see also: Flores et al. 2002). Stocks (1999) identified the need for more assistance to several of the lowland indigenous territories and communities to prevent unfavourable contracts between them and

¹⁵ A large USAID funded project aiming to promote sustainable forest management in Bolivia operating in collaboration with the Ministry of Sustainable Development and Environment (MDSMA) active in the first phase from 1993 to 2003 and in the second phase from 2004 – current.

¹⁶ Such as the Fundación José Manuel Pando in Pando.

private timber enterprises at an early stage. The BOLFOR project never took on this challenge, however, because of the resources required to operate in these regions, the risk of failure and the difficulty of guaranteeing the safety of their personnel (personal communication).

In the northern, Amazon, region of Bolivia, some NGOs considered that timber extraction was not the main interest of the rural communities as most local people were involved in the extraction of non-timber forest resources such as Brazil nuts. Timber extraction was considered a threat to these practices as well as to the forest ecosystem. To a certain extent, NGOs failed to acknowledge previous engagements with the local population, as has been described in chapter 4, as well as the pressure exerted by private enterprises to include the communities in timber extraction activities. The resulting contractual agreements between the CFEs and private enterprises are generally unfavourable and could have been better if the NGOs had foreseen that certain developments are hard to stop but can be redirected.

In general, indigenous communities located in the more accessible areas received the major part of the NGO financing for forest management. They have benefited both from the international attention for indigenous rights and the land reform enacted in Bolivia in 1996 as well as from the attention from environmental NGOs which identified the indigenous organizations and communities as possible allies because of the extensive forests areas they owned and the alleged interests and abilities of the indigenous population to manage the forests. The emphasis on the number of hectares under a forest management plan in the final report of the BOLFOR project confirms the importance this objective (Chemonics International Inc 2004).

5.5.3 Organizational aspects

NGOs that financed community forest management plans also greatly influenced the organizational structure of the newly created CFEs, starting with the nomenclature alone: CFEs with 'technical teams' have been supported by BOLFOR or related NGOs, CFEs with a 'Forest Committee' have been supported by APCOB, CFEs with a 'Forest Directive' have been supported by MINGA/GUAPOMO, CFEs with 'direct forest user groups' have been supported by CIDDEBENI, etc. Communities that have not been supported by NGOs do not generally form a specialized body to deal with forest management issues but leave this task to the existing community leaders.

Over time the organizational models presented by the NGOs have undergone major adaptations that will be described later on. Two of the proposed models have caused internal problems in the communities where they were implemented. The first model has been rejected in all communities where it was applied (and copied by communities in the region working with private enterprises): this is the 'direct user model'. Although the intention of the NGO was to install a body of people to implement the management plan in the name and for the benefit of the entire community, the name itself generated the idea that only the 'direct users' could make

use of the forest. The idea of excluding the majority of the community from using the forest was entirely unacceptable. As a result, nobody would volunteer to establish or re-establish the user group, and the community members had to appoint a candidate hoping that he would accept the assignment. None of the CFEs initially established as forest user groups are functioning at the moment¹⁷. The communities that used to have a forest user group and that wanted to reactivate their CFE plan will choose an alternative organizational model in the future.

A second, indigenous territory model has proven unsuccessful due to its scale of operation. NGOs helping the indigenous organizations to strengthen their land rights promoted forest management plans encompassing (almost) the entire indigenous territory and all involved communities (from one to a maximum of 57). The Yuracare territory encompasses 60,809 hectares for 18 communities and the Bajo Paragua territory encompasses 90,758 hectares for five Chiquitano communities. From an ideological point of view, a territory that belongs to all inhabitants should be managed collectively under the leadership of the representing indigenous organization. Environmental NGOs went along with this ideological discourse as it implied that vast continuous forest areas could be placed under forest management. This despite the fact that in certain territories, user rights in general but also timber exploitation rights were highly organized on an individual basis before enactment of the 1996 Forest Law (see also chapter 4). Proposals to divide the management areas into smaller parts were generally rejected, either out of efficiency considerations (more roads would be necessary and logging areas would be smaller) or out of ideological considerations regarding the indivisibility of the territory.

The indigenous territory model proposes the creation of forest committees to implement the forest management plan in name of all inhabitants of the indigenous territory. The forest committee generally functions from the largest, and best accessible, community in the territory or even from a village outside the territory which has electricity and communication facilities. This means that members from other, more distant, communities are not directly involved in forest management issues and can only voice their opinion through their village authority. This makes direct participation difficult and accountability of the leaders is generally low. Moreover, as the inhabitants of the territory receive very low direct benefits from the timber sales, they feel that their leaders have prohibited them from logging trees to benefit from timber sales themselves. In one of these territories, the overall management plans still exist and the committee still functions but there is virtually no participation of the communities in decision-making. Moreover, the more distant communities have sought to engage in forest management on their own account and have elaborated additional management plans in unoccupied parts of the territory and even requested forest concessions from the municipality outside their territory.

¹⁷ Their failure may not be completely contributed to the name of their CFE, however, it has played a mayor role which they have not been able to overcome due to the difficult situation in that particular region.

Other organizational models have not caused such obvious problems but they have been adapted over time. Where initially the responsibility was given to a single person, later more people were added; where large management teams were proposed, the size of the teams was reduced because the costs of maintaining large teams were too high. Rather than receiving monthly salaries, some CFEs installed sub-contractors for certain activities to improve efficiency. The manager of one of the CFEs even proposed that candidates should present their proposals and campaign to be elected by the community. Where CFEs have been operational and ever more successful, the function of managers becomes more desired and rather than appointing people and pleading with them to take charge, people volunteer to become the managers and ever more members of the community are taking an interest in participating in decision-making.

5.5.4 Advisory practices

NGOs advise on organizational aspects; administration and marketing are often based on theoretical concepts and ideology rather than on practical knowledge. Interesting is, for example, the emphasis on formal contracts for the sale of timber. The introduction of the contract as a concept has been very successful and has given the CFEs an additional element to enforce their contracts with timber buyers and service providers. The emphasis that NGOs lay on the elaboration of formal and detailed contracts, however, is of little practical use as contracts can hardly be enforced legally. Many CFEs do draw up contracts but have made the formulation easier and understandable for everybody and adapted the conditions stated in the contract to be relevant to the actual situation. For example, a CFEs stopped demanding payments immediately after delivery of the timber but included in the contract a clause stating that the buyer would pay for the timber the moment he managed to sell it himself, because that was the way it happened anyway. The buyers do have to make sure the CFEs have enough operational capital though, which was the most important problem caused by delayed payments. CFEs that have, for whatever reason, a better negotiating position also changed the conditions accordingly and can demand that all timber is paid for as soon as it has been loaded on the truck.

The NGOs also advise that CFEs reserve sufficient money to prepare next year's logging plan and to initiate logging activities. Most CFEs do write next years logging plan using the proceeds from timber sales, but in most cases the CFEs still require an advance payment from the timber buyer to initiate logging activities. However, CFEs do not consider that the advance payment make them dependent on the enterprise, but see it as a guarantee that the enterprise will keep its promise to buy the timber and enter the forest to extract the trees after felling. Where CFEs use the advance payment to guarantee the implementation of the signed contract, the NGOs consider it a burden as the CFEs cannot start logging until they receive the money. Considering the amount of timber felled by the CFEs and never extracted by the enterprises, the guarantee asked for by the CFEs seems reasonable.

5.5.5 Contractual arrangements with the NGOs

The main characteristics of the contractual arrangements between the CFEs and the NGOs are presented in table 5.4. Cooperation between CFEs and NGOs is based on general agreements or covenants where both parties express their interest in cooperation and the objectives to be pursued. NGOs assist the CFEs in strengthening land rights, promote sustainable forest management and improve living conditions in the communities. Depending on the type of NGO, anyone of these objectives might receive more attention. Most NGOs pursue all objectives to a certain extent because the success of each of the objectives is considered to be interrelated. NGOs may work with the communities on different issues over a long time period or on a specific issue for a short time. Not all NGOs offer the same services but in generally services offered include: funding, credit, technical assistance, organizational assistance, training and exchange of experiences. The agreements between the CFEs and NGOs are often established in informal 'memoranda of understanding' between the NGOs and the communities or between the NGOs and the representing indigenous or farmers' organizations or municipalities. Agreements are very general, seldom specify the rights and obligations of the parties involved and cannot be enforced legally.

5.5.6 Concluding remarks on NGOs

This section has shown that in many ways the activities undertaken by the NGOs are influenced by the wider institutional setting that they operate within. The locations and communities NGOs worked with before they started assisting the CFEs have greatly determined which communities have had access to the financial and technical assistance for a forest management plan. Most CFEs receive financing from NGOs that worked with the communities before

Table 5.4 The characteristics of the contractual agreements between the CFEs and NGOs.

Subjects NGOs	
Type of contract	<ul style="list-style-type: none"> • Covenants, with umbrella farmers' / indigenous organization, municipalities or with individual CFEs
NGOs' objectives	<ul style="list-style-type: none"> • Establishment of land rights • Improved living conditions • Sustainable forest management
Type of NGOs	<ul style="list-style-type: none"> • Human (indigenous) rights based NGOs • Environmental NGOs
Product exchanged	<ul style="list-style-type: none"> • Funding / credit • Technical assistance • Organizational assistance • Training • Exchange of experiences
Document agreement	<ul style="list-style-type: none"> • Memoranda of understanding, minutes of meetings, reports
Duration of agreement	<ul style="list-style-type: none"> • General long term (>30 years) and specific short term (< 2 years) agreements
Clarity of rights and obligations	<ul style="list-style-type: none"> • Agreements are normally general with statements on intentions rather than clear rights and obligations
Compliance mechanism	<ul style="list-style-type: none"> • Informal mechanisms only • No formal mechanisms possible

and that included forest management activities as an additional strategy to reach objectives they were already working on. Even newly established projects that did not have connections with certain communities before initiating the project established working relations with the communities through other NGOs. They therefore also ended up working with the same communities, often in collaboration with the established NGOs. Risk reduction is mentioned as a reason for working in the same regions and seeking to collaborate with other NGOs.

The objectives NGOs work on in certain regions with certain groups therefore also determined whether or not forest management was considered a relevant additional undertaking. NGOs working on land rights considered forest management relevant because of the large areas that could be put under some legitimate use with relatively little effort. For environmental NGOs, the potential to manage the forest was better than forest conversion and opened up opportunities for environmentally sound management practices. NGOs working on agricultural production have been less convinced of the benefits of forest management activities for the farmers they work with because forest management regulations were directed at large-scale operations rather than small-scale activities. These objectives and previously established ideas also strongly influenced the activities carried out to assist the CFEs as well as the models of organization proposed to the communities to manage their plan.

International ideas and discourses on community forest management motivate the NGOs to 'deliver' CFEs that are socially, economically and ecologically sustainable. This attitude may have positive results initially as more community members are informed about the forest management activities that take place in their locality (see also: Ito et al. 2005). Later on, however, if NGOs' advice and actions continue to be inspired by ideology rather than by practical issues the CFEs face, communities may decide to end collaboration with the NGOs. Communities that received assistance from an NGO for forest management issues only are more likely to end collaboration than communities that have been working with a specific NGO on several issues over a longer period.

5.6 Types of CFEs developed within the institutional environment

The institutional aspects that have been discussed in this chapter are multiple and diverse in character and undoubtedly incomplete. The contractual arrangements between the CFEs and their exchange partners are the result of this variety of factors that through multiple processes reinforce and weaken each other and influence decision-making on forest use in rural communities. Physical and economical factors also influence the contractual arrangements that exist between parties, such as the area covered by a forest management plan, accessibility of the community's forest, available tree species and the price of timber on the international market.

Chapter 4 showed that market actors prefer to use the cheaper and more accessible small-scale logging authorizations to access the forest resources on farmers' and communities' lands. Timber enterprises offer assistance to individual community members or farmers to arrange logging permits with the Forest Service or Municipal Forest Unit and organize the extraction of timber from the forest. Although timber prices may be much lower than the prices paid for timber to the CFEs, payments are made immediately and individually, which means that the seller profits from timber sales in a direct way. The contractual arrangements between individual farmers and community members have not been included in this study but it is important to realize that rural people engage widely in the commercialization of timber though these small-scale logging authorizations and that only a small proportion of the communities, for some reason, end up developing a large-scale (>200 ha.) and long-term (at least 20 years) forest management plan that is managed according to the state regulations on sustainable forest management. The organizational bodies constituted by these communities to implement forest management activities are referred to as the CFEs.

Chapter 5 has focussed entirely on the institutional factors that influence the constitution and functioning of these CFEs. The factors that instigate the development of large-scale forest management plans are similar to the factors instigating the use of small-scale logging authorizations. Although the timber market mainly offers services to log timber based on small-scale logging authorizations, under certain circumstances (for example if a community has high quality and quantity timber, if high investment is required, where there is more control on timber extraction by the Forest Service, or high competition among timber buyers, etc.) some timber buyers are prepared to invest in large-scale community forest management plans. The communities that receive financial assistance for the elaboration of their management plan from a private enterprise generally engage in long term timber sale contracts. These CFEs will be further referred to as market-assisted CFEs.

NGOs also offer their services to rural communities to finance large-scale forest management plans. The CFEs that have received financing from NGOs for the development of their management plans are referred to as NGO-assisted CFEs. NGOs have specific selection criteria as to which communities they assist, and individual communities can hardly influence this decision. NGO-assisted CFEs are not indebted to timber buyers as the market-assisted CFEs are, and are free to make timber sale contracts for the time-span they prefer, usually for the extraction of timber from one logging area.

The high costs of developing a forest management plan mean that communities depend on the willingness of either market actors and/or NGOs to provide the required capital. Communities that do not meet the selection criteria employed by the market or NGOs do not have access to the necessary capital to elaborate a large-scale forest management plan and will base logging operations on small-scale logging authorizations. In some cases (ten per cent of the CFEs) the

communities manage to obtain financing from other sources and finance the management plan on their own account. These communities are generally very determined to follow the example of neighbouring CFEs.

On the other hand, CFEs that do meet the selection criteria of the NGOs or market actors may not be interested in forest management activities and have to be 'motivated or convinced'. NGOs and private enterprises both have their particular ways of doing this. Both provide (albeit very different) information about the potential benefits of forestry as well as the required capital to engage in it. Additionally they engage in all kind of additional activities. NGOs, for example, organize meetings and courses to convince the community members of the importance of forest management and offer all kinds of side-benefits if the community decides to participate in their forest project. Timber buyers, on the other hand, visit the annual community festivities, donate food for the annual party, finance the football team, etc. to establish good relationships and convince the community to sell timber to him or her. Influencing decision-making can also take more repressive forms. Enterprises cheat community members and threaten with legal action and court cases if the communities decide not to sell. NGOs promise goods and benefits they are not able to provide and refrain from informing the communities about the downsides of forest management activities.

The incentives provided by the different parties may all act upon the communities simultaneously and reinforce or weaken each other. NGOs may promote forest management through radio programs and thereby convince the community to accept an offer from a private enterprise. It is important to acknowledge that all mentioned actors have specific and diverse motives to encourage local communities to engage in forest management and/or timber exploitation and that they offer different 'packages' of incentives and services to influence decision-making. Likewise, the communities have their specific and diverse motives for accepting certain service packages and not others.

It is important to keep in mind that all contractual arrangements between the communities and their trading partners are, in principle, voluntary in character. This might seem contradictory after emphasising the influence of the market and NGOs on decision-making by the communities but nobody obliges the communities to deal with the Forest Service, the market and or the NGOs. Rural communities are free to use the land they own according to their own interest and judgement. They may decide to convert the forest into agricultural fields or pasture for cattle keeping; they may choose to protect the forest or engage in commercial timber exploitation. Only if a community chooses to engage in commercial timber exploitation do they need to comply with the regulations on sustainable forest management as formulated by the Forest Service. This is an important factor that possibly distinguishes Bolivian communities from rural communities in other countries that have been given the 'right' to manage and use the forests but do not have the right to convert it. Also, interaction with NGOs

is also voluntary. NGOs might approach individual farmers, communities, indigenous and farmers' organizations or municipalities to establish agreements to work on more or less pre-defined subjects. Nobody is obliged to work with the NGOs, however, and people are free to determine whether, for what purpose and for how long they want to receive NGO assistance. Similarly, CFEs are not obliged to sell their timber and do not need to engage with the market if they choose not to.

Despite the multiple institutional aspects that influence the constitution and functioning of the CFEs, the overall institutional framework within which they have to somehow 'make a living' is determined by just a few major aspects. Within this framework, multiple interacting, contradicting and dynamic elements play roles that are not likely to be decisive by themselves but that may play a mayor role in interaction with simultaneously occurring factors. Three aspects have a major influence on the constitution and development of the CFEs. First, the regulations on community forest management installed by the government. These regulations have created an important entry barrier as the development of a forest management plan is costly and complicated. Moreover logging regulations require the use of heavy machinery and therefore limit the forest management system that the CFEs can adopt, as well as their potential to engage in timber processing. Second, the source of capital for the development of the management plan determines to a great degree the development path a CFE takes. Communities that received NGO financing do not need to get into debt with private enterprises and can therefore sign flexible short-term timber sale contracts. Communities that received financing from private enterprises are highly indebted and have long-term timber contracts that are difficult to adapt. A third group of auto-initiated CFEs obtained financing from a variety of independent sources and also engage in short-term and flexible timber sale contracts.

The arrangements between all these exchange partners have resulted in four generalized 'types' of CFEs that have established different relations with external actors.

The first type is the high profile CFE. The managers of this type of CFE invest a lot of time in their enterprises to improve their performance and to engage more in the processing of timber. The income from these CFEs has become an important part of the total income for the people working for the CFEs, and not necessarily, but possibly, for the entire community. The second type is the medium profile CFE. The managers of this type of CFE run the enterprises to obtain additional benefits from the forest and additional labour opportunities for community members. Benefits from timber sales provide a welcome additional income but do not constitute the main source of income for the CFE managers or community members. The third type is the low profile CFE. The managers of these CFEs are often community leaders whose main task is to maintain contact, monitor and control the private enterprise logging timber from the communities' forest. The private enterprise provides basic services to the

communities, such as the construction of roads and a school, and pays for the timber. No major conflicts have arisen between the community and the enterprise but this can happen any time, especially if timber prices rise and the enterprises are unwilling to adapt the contractual conditions. The fourth type is the locked-in CFE. Their managers, also mainly community leaders, have signed contracts with enterprises that do not satisfy their expectations and they have difficulties getting rid of the timber sale contract or resolving the problems. This situation is unstable and the CFE will eventually halt logging activities by the enterprise and refrain from logging altogether or search for alternative ways to benefit from their timber sources.

The flowchart in figure 5.5 shows the factors that have influenced the development of the CFEs into one of these four generalized types. This figure might give the impression that the development path of the CFEs depends entirely on external factors. It is not the intention to neglect the influence of the CFE managers and communities however. It is important to recognize that every step in the flowchart implies decision-making by the CFE managers and/or community members, and at any stage the CFE can choose to discontinue forest management activities and choose not to log or to let individual community members log timber based on the small-scale logging authorizations as discussed in chapter 4.

Government regulations determine the playing field as these have created a major entry barrier for all communities that, for whatever reason, might want to engage in large-scale forest management. The chart starts with the need for capital to develop the forest management plan (A). Management plans can be financed by NGOs, by private enterprises and by the communities themselves if they obtain credit or advance payments from an additional party (B). NGO-assisted CFEs and auto-initiated CFEs are free to sell timber to any buyer and normally engage in short-term timber sale contracts (C). Market-assisted CFEs are normally tied to long-term contracts (D). CFEs with short-term contracts that obtain additional funds or credit may advance in the production chain and, to a limited extent, process the timber (E). CFEs with short-term contracts that do not have access to capital or do not want to engage in timber processing fell the trees in the forest and let the buyers extract the logs (F). All CFEs that have received funding for certification have lost certification within a few years and re-assumed selling timber through short-term contracts as before certification (G). Some CFEs that engage in the processing of timber have decided to go back to selling felled trees because the extraction activities required too much expenditure without providing additional benefits (E). Other CFEs that used to sell felled trees may obtain the necessary capital to engage in timber processing (I). Some CFEs that encounter difficulties with the market or (in most cases) with the Forest Service stop using the forest management plan and either stop logging at all or log trees from agricultural plots with small-scale logging authorizations (J).

The CFEs that start off with long term contracts may be satisfied with the services provided by the enterprise (K). This is not very common but some enterprises maintain good relations with the communities despite the low prices they pay. Many CFEs, sooner or later, have some conflict

with the enterprises and if they find assistance from an outside party they might dissolve the contract (L). If the CFE receives assistance from a private enterprise who is prepared to take over, and improve, the contract from the previous buyer, the CFE might engage in another long term contract (M). If the CFE receives assistance from the Forest Service or an NGO they might be able to dissolve the contract and continue as a 'free' CFE that can make short-term contracts with timber buyers (N). Some CFEs may decide to refrain from logging completely (O). The CFEs that do not find a way to dissolve the contract will continue resisting logging activities and start endless discussions with the enterprise and even obstruct timber extraction. Eventually the enterprise will withdraw, but often not before having logged all good quality timber from the community forest area (P).

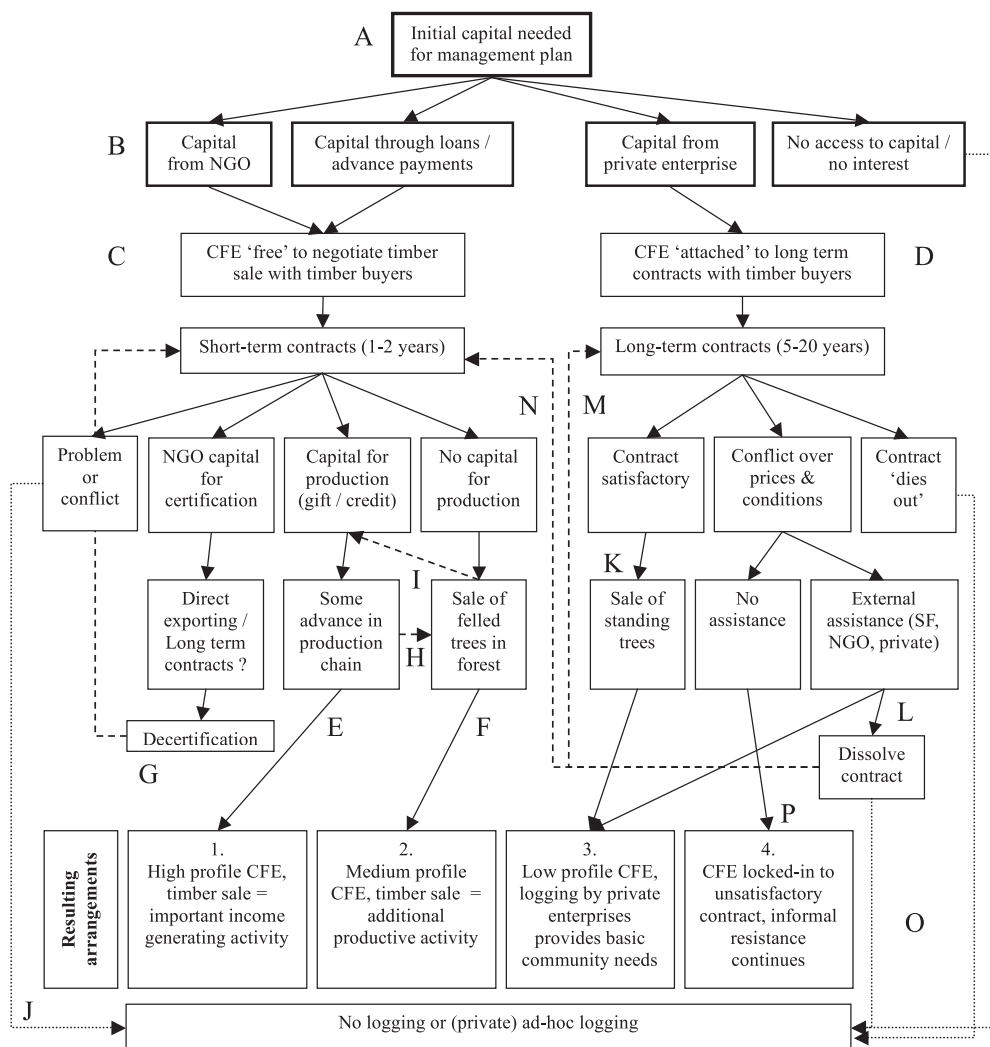


Figure 5.5 Flowchart of factors affecting the contractual arrangements between CFEs and market actors

5.7 Conclusion

The overall objective of this chapter was to demonstrate the influence of the institutional environment on the constitution and functioning of the CFEs. Different elements of the institutional environment that affect the establishment and performance of CFEs were identified and analyzed.

The most important conclusion is that, at least initially, external parties rather than local people decide on the type of logging authorizations used. Local people accept the application of the type of logging authorization (small-scale or large-scale) that is proposed to them by external parties. Services to apply for small-scale logging authorizations are mainly offered by timber buyers. Services to develop large-scale management plans are offered by timber buyers and NGOs.

Regulations on forest use imposed by the government require the availability of specialized knowledge and capital. Whereas services to develop small-scale management plans are mainly offered by market actors, both market actors and NGOs offer services to the communities to develop large-scale management plans. Both timber enterprises and NGOs have their own reasons to invest in these plans and both use specific, albeit very different, characteristics to select the communities to work with. Communities that do not possess these characteristics are most likely to engage in timber logging based on small-scale logging authorizations. Some CFEs have searched for other sources of credit to copy the activities implemented by neighbouring CFEs. While, this is a minority of the existing CFEs it does indicate that very motivated communities might find alternatives to the NGO or market assisted models.

NGO financed CFEs are not indebted with the timber buyers and can engage in short-term contracts. These contracts enable the CFEs to experiment with timber buyers and contract conditions until they find an arrangement that meets their particular objectives. Timber prices, number of species, duration of timber extraction and payment schemes are the most negotiated aspects of these contracts. All but one, of the NGO assisted CFEs are responsible for the development of logging plans and reports and actively engage in timber logging. Extraction of timber from the forest is usually carried out by the timber buyers. NGO assisted CFEs may develop into 'high profile CFEs', whose members' livelihoods are based on timber sales or 'medium profile CFEs', for whose members timber sales constitute an additional productive activity.

Market assisted CFEs are indebted to timber enterprises which require the CFEs to sign long-term contract to enable the enterprise to safeguard its investments. The contracts cannot be renegotiated, the prices are low, CFE members do not partake in forest management activities and the CFEs have little knowledge about their rights and obligations. Market assisted CFEs

may develop into 'low profile CFEs' which are reasonably satisfied with the contract because the enterprise provides basic needs, or 'locked-in CFEs' that would rather dissolve the timber sale contract but have difficulties doing so. In conclusion, the institutional aspects that influence the constitution and development of the CFEs most are the costliness of the forest management regulations and the source of finance for the management plan.

Contractual arrangements and transaction costs

6.1 Introduction

The overall aim of this study is to improve our understanding of how the institutional environment influences the performance of Community Forest Enterprises (CFEs) in the lowlands of Bolivia. The study departs from the idea that all exchanges impose certain costs on the exchange partners. These costs are conceptualized as transaction costs or the 'costs of doing business'. These transaction costs are the focus of analysis of this study as they are considered to be indicative of the degree to which the institutional environment enables or obstructs the establishment and functioning of CFEs.

Chapter 5 showed that the institutional environment has a considerable impact on the contractual arrangements that CFEs have established with different societal parties. The chapter identified that community forest management regulations are costly to comply with and, as a result, CFEs need external financial assistance to develop a forest management plan as well as capital investment from private enterprises to extract the timber from the forest. The source of financing for the management plans largely determines the type of timber sale contracts that the CFEs later engage in with timber buyers. CFEs that have indebted themselves to timber buyers (market-assisted CFEs) engage in long term timber sale contracts, while CFEs that have obtained financing from NGOs (NGO-assisted CFEs) or from a third party (auto-initiated CFEs) engage in short term timber sale contracts. The objective of this chapter is to gain further insights in the size and type of transaction costs that the CFEs incur under these different contractual arrangements. Thus, this chapter focuses on what Williamson calls the 'play of the game', the third level of institutional analysis where the contractual arrangements and the transaction costs are located (Williamson 2000).

The first section of this chapter presents the results of the transaction costs analysis for several contractual arrangements between the CFEs and the market, the state and NGOs. The transaction costs incurred by NGO and market-assisted CFEs and between CFEs with short and long term timber sale contracts will be compared, with attention being paid to how the transaction costs evolve over time. The second section of this chapter analyses the transaction costs incurred for different transactional activities, comparing the cost of information gathering, negotiation, enforcement and compliance between the NGO and market-assisted CFEs, between different exchange partners and how these develop over time.

The high and medium profile CFEs presented in chapter 5 are included in the group of NGO-assisted CFEs while the low profile and locked-in CFEs are included in the group of market-assisted CFE. As a minimum number of cases is required for statistical data analysis it was not possible to separately analyse the four groups of CFEs presented in chapter 5, nor to separately analyse the auto-initiated group of CFEs. These groups would have been too small to apply meaningful statistical analysis, especially when analysing developments over time.

Thus, the analysis mainly focuses on the difference in transaction costs between the NGO-assisted and the market-assisted CFEs and between CFEs with long and short term contracts with the market. There is a strong overlap between these two groups as 97 per cent of the NGO-assisted CFEs have short term contracts and 47 per cent of the market-assisted CFEs have long term contracts. The other market-assisted CFEs have not yet received any finance to develop their forest management plan and have short term contracts because private enterprises had only invested in the much cheaper logging plans at the time of them being interviewed. For this reason these CFEs have short, rather than long term, contracts with the timber buyers. Once the private enterprises finance the CFEs' management plans, they are likely to sign the CFEs up to a long term timber sale contract. The difference in transaction costs is therefore clearer when comparing the NGO-assisted CFEs with the market-assisted CFEs and less obvious when comparing CFEs with short term and long term timber sale contracts.

6.2 The overall level of transaction costs

Figure 6.1 presents the frequency distribution of all the transaction costs with all exchange partners. The methodology chapter explained that the total transaction costs were determined by summing up the transaction costs¹ with the market, the state and the NGOs and that these ranged between 0 and 300. Figures 6.1 b-d present the frequency distribution of the transaction costs with the market, the Forest Service (state) and the NGOs, which vary between 0 and 100. Applying the Kolmogorov Smirnov test for normality shows that the frequencies of the transaction costs are not significantly different from the normal distribution. All scores are positively skewed, with higher scores on the left hand side of the distribution. Table 6.1 gives statistical information about the measurement of the transaction costs.

Table 6.1 shows that, on average, there is little difference between the transaction costs that the CFEs incur with the state, the market and the NGOs. However, the distribution of the transaction costs between exchange parties does differ slightly. The transaction costs with the Forest Service can be both very low (the lowest transaction costs score) and also very high (the highest transaction costs score). Dealing with the Forest Service thus appears inexpensive for some and very costly for others. The maximum transaction costs with NGOs are lower than the maximum transaction costs that the CFEs incur with the other exchange parties. Thus interacting with NGOs is relatively cheap and never gets very costly. The minimum transaction costs are highest for interacting with the market which is thus never very cheap but, surprisingly, also never as costly as dealing with the Forest Service. It is perhaps surprising that interactions with the Forest Service should be more costly than those with the market, since Bolivia's Forest Law was intended to enable community forestry.

¹ Because a qualitative assessment has been applied to assess the transaction costs there is no absolute unit of transaction costs other than 'the relative height of perceived transaction costs'.

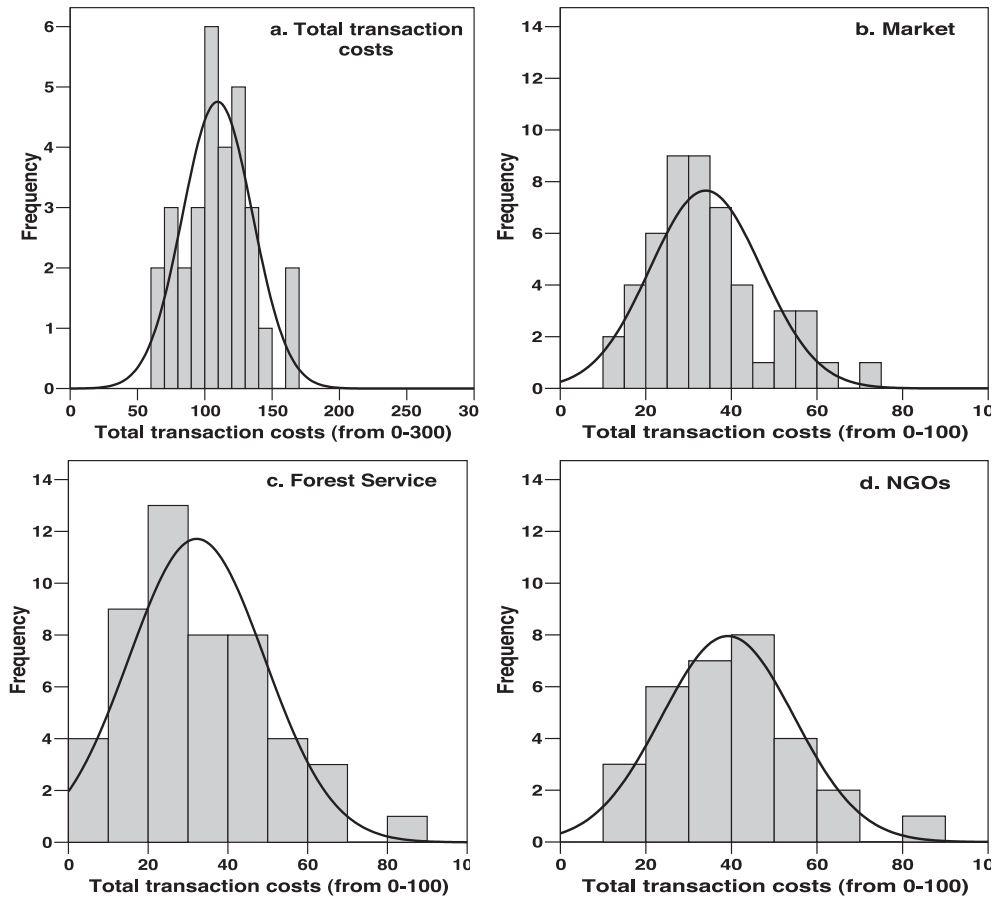


Figure 6.1 Frequency distribution of the total TC (a), TC with the market (b), TC with the Forest Service and (c), TC with NGOs, including the normal distribution curve

Table 6.1 Basic statistic parameters of the total TC and the TC per exchange partner

Type of transaction costs (TC)	N	Mean	Min.	Max.	Std. dev.	Kolmogorov Smirnov		
						Statistic	Df.	Sig.
Total TC	50	95.21	33	186	34.70	0.070	50	0.20
TC with the market	50	34	14	72	13.03	0.119	50	0.74
TC with the Forest Service	50	32.18	8	85	17.03	0.117	50	0.85
TC with NGOs	31	32.13	9	56	10.85	0.101	31	0.20

Although this information is quite general, it already reflects the effects of the characteristics of the type of contractual arrangements that the CFEs have with their exchange partners. Whereas the contractual arrangements with NGOs and timber buyers are established on a voluntary basis, a CFE that wishes to develop a forest management plan, sooner or later has to deal with the Forest Service. If the transaction costs with NGOs or the timber buyers become too high, the CFEs are free to revoke the contracts and search for alternative partners and,

while not all CFEs might have the opportunity to switch partners they also have the choice of continuing without NGO assistance or refraining from selling timber until the transaction costs become acceptable to them.

While the average transaction costs incurred by CFEs with the Forest Service, the market and NGOs are similar, the transaction costs with these parties different considerably between the NGO-assisted and market-assisted CFEs. The following section compares the size and characteristics of the transaction costs between these groups.

6.3 Comparing the transaction costs of NGO- and market-assisted CFEs

An importance difference between the CFEs included in this study is whether or not they receive assistance from an NGO. NGOs can play an important role in reducing the transaction costs of communities with external parties (Cameron 2000). As such it was expected that the NGO-assisted CFEs would incur lower transaction costs with the market and the state than the market-assisted CFEs. The transaction costs incurred by these two groups are shown in figure 6.2. Contrary to expectations the NGO-assisted CFEs incurred significantly higher transaction costs when interacting with the market and the Forest Service than the market-assisted CFEs and also incurred additional transaction costs through their interacting with the NGOs themselves. The transaction costs of dealing with NGOs are rarely considered by researchers, although, as the figure shows, these can be quite substantial.

While this result is unexpected and counter intuitive, it can be easily explained. While NGOs develop forest management plans for communities, they do not implement the actual activities themselves but motivate the CFEs to take responsibility for this. Private enterprises, on the other hand, develop the forest management plan and then take on all activities with the

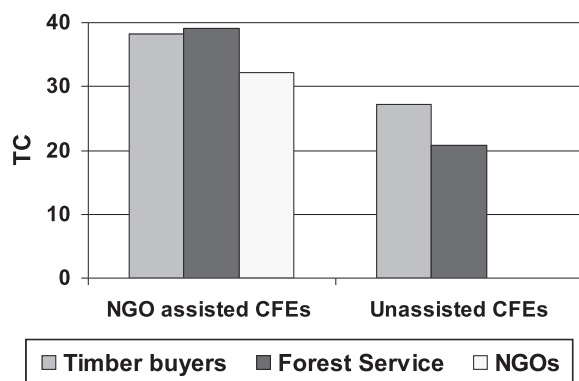


Figure 6.2 T of NGO and market-assisted CFEs with timber buyers, the Forest Service and NGOs (n=50; max. TC=100).

Test results One-Way Anova between NGO- and market-assisted CFEs: TC market: $F(1,48) = 10$, $p < 0.01$, TC state $F(1,48) = 18.6$, $p < 0.001$

Forest Service in name of the communities. Moreover, they do this without greatly involving the communities whose forests are being logged. NGO-assisted CFEs meet the challenge of implementing the forest management plan paid for and developed by the NGOs and in doing so have to engage with the Forest Service and timber buyers. The market-assisted CFEs thus outsource both the development and the implementation of the management plan and do not need to interact extensively with other parties and as such only really interact with the private enterprise that finances their management plan.

Moreover, as the market-assisted CFEs only deal with the private enterprises, one would expect that they would incur higher transaction costs with the market than the NGO-assisted CFEs. In practice, however, the market-assisted CFEs interact with the private forest enterprises less frequently and over a much more limited number of topics than the NGO-assisted CFEs do with the timber buyers. This aspect will be discussed later, when analyzing the transaction costs with the market.

The information collected on the transaction costs incurred by the CFEs distinguishes between: (1) the time and resources spend on transactions and (2) the costs incurred due to difficulties encountered during the transactions due to their complexity. Figures 6.3 and 6.4 show the transaction costs in terms of time and resources (T&R) and the resources spend on encountered difficulties of interacting with the timber buyers and Forest Service respectively. The figures show that NGO-assisted CFEs spend significantly more time and resources on transactions with the timber buyers and the Forest Service than the market-assisted CFEs. This confirms the observation that the market-assisted CFEs do not engage in a lot of interactions with these parties. On the other hand, the costs incurred due to the difficulty experienced when dealing with the timber buyers and Forest Service is similar for both groups. While NGOs stimulate the CFEs to take responsibility for their transactions with the timber buyers and the Forest Service this does not prevent the CFEs from encountering the same level of difficulties as the market-assisted CFEs.

Figures 6.5 to 6.8 show the transaction costs incurred by the NGO- and market-assisted CFEs due to the time and resources (T&R) and the difficulties incurred in transactions with timber buyers and the Forest Service over time.² Figure 6.5 shows that older NGO-assisted CFEs spend significantly more time and resources on market transactions than the newer NGO-assisted CFEs. Older NGO-assisted CFEs particularly spend more time and resources on market transactions because they increasingly engage in timber processing activities. These activities include road construction, loading and transporting trees to the local sawmill and

² This information compares the transaction costs of different age groups of CFEs and not the transaction costs of the same CFEs during an extensive time period. The age groups refer to the number of years the CFEs have been working and not necessarily to the number of years the CFEs exist, see further chapter 7.

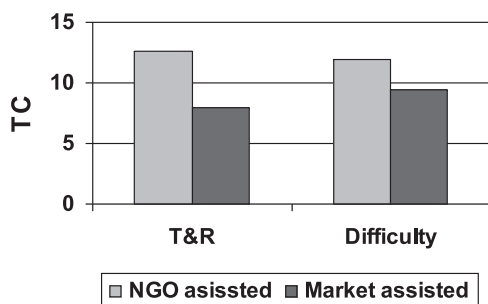


Figure 6.3 TC due to T&R and difficulties with timber buyers for NGO- and market-assisted CFEs

Test results One-Way Anova between NGO and market-assisted CFEs: T&R; $F(1,48) = 44.87$, $p < 0.01$

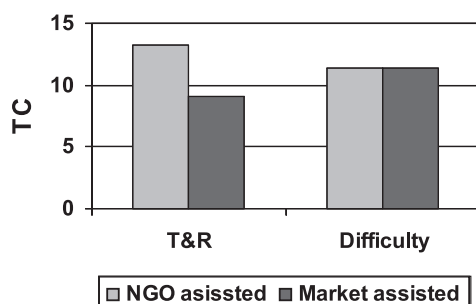


Figure 6.4 TC due to T&R and difficulties with the Forest Service for NGO- and market-assisted CFEs (max. TC=25)

Test results One-Way Anova between NGO and market-assisted CFEs: T&R; $F(1,48) = 39.47$, $p < 0.01$; Difficulty, $F(1,48) = 7.67$, $p < 0.01$

occasionally also the processing of trees into electricity and fencing poles and sawn timber. These activities normally require additional interactions with the market because they involve the hiring of equipment and locating and negotiating with more specialized buyers, sometimes involving interactions with more than one timber buyer at the time. Thus the additional time and resources spent on market transactions reflects an increase in transactions with the market.

Older NGO-assisted CFEs seem to incur fewer transaction costs over difficulties experienced with the market, but this reduction is not significant. Older NGO-assisted CFEs do, however, spend significantly more time and resources on market transactions than the resources they expend on dealing with difficulties. In this sense the older CFEs experience fewer difficulties with the market over time, suggesting that transactions with the market become less complicated after some years of experience.

The market-assisted CFEs do not experience any change in the market transaction costs incurred over time (see figure 6.6). Both older and newer market-assisted CFEs spend a similar, lower, amount of time and resources on their transactions and expend a similar, higher, amount of resources on dealing with difficulties with timber buyers. Whereas the NGO-assisted CFEs seem to learn from repeated interactions with the market, this is not the case for the market-assisted CFEs.

Figure 6.7 shows that, over time, the NGO-assisted CFEs expend significantly less resources in dealing with the difficulties they encounter in interacting with the Forest Service. The time and resources they expend on interacting with the Forest Service remains relatively constant. Generally, once the forest management plan is approved, interaction with the Forest Service

is mainly related to operational issues, such as the approval of logging plans and reports, tax payments and the granting of transport permits. These operational activities become routine activities that occur at the local level where the CFE managers have frequently established good personal relationships with the forest officers. However, even these routine activities require some time and effort. The CFEs frequently complain about the time they have to wait for the Forest Service to provide transportation permits, which can take up to three days.

The decline over time in resources spent on overcoming difficulties indicates a change in the nature of relations between the Forest Service and the CFEs. One would expect the market-assisted CFEs too also benefit from such a change in relations, but this does not seem to be the case (see figure 6.8). This may partly be explained by the limited interactions between the market-assisted CFEs and the Forest Service, which prevents the build up of good relations with the forest officers. Equally the two groups of CFEs are mostly located in different regions (as shown in chapter 5) and this might indicate that the changed relation between the CFEs and the Forest Service in one region has not occurred elsewhere. The establishment of a trusting relation between the CFEs and forest officers might therefore be personal rather than institutional. This interpretation suggests that while individual forest officers may have changed their attitude towards the CFEs, the Forest Service as an organization has not.

Thus it can be concluded that although the NGO-assisted CFEs incur higher transaction costs with the Forest Service and the timber buyers than the market-assisted CFEs, most of these costs originate from the time and resources spent on transactions necessary to implement the forest management plan. The market-assisted CFE incur lower transaction costs but spend relative more resources in dealing with the difficulties that they encounter compared to the NGO-assisted CFEs. The origin of the transaction costs incurred by the two groups of CFEs is of critical importance. The costs incurred in terms of the time and resources spent, can be considered as an investment in building a relation with the other exchange parties. The costs incurred in dealing with difficulties, might therefore be taken as a better indicator of the extent to which the institutional environment is enabling or obstructive.

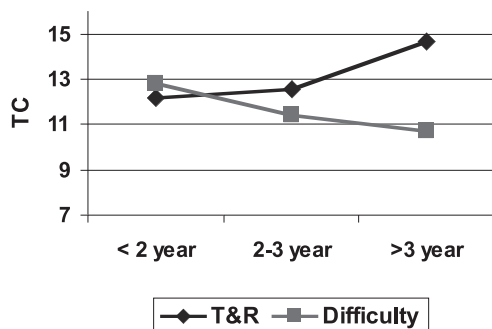


Figure 6.5 TC due to T&R and difficulties over time with timber buyers for NGO-assisted CFEs (n=31; TC range from 0-20)

Test results One-Way Anova: between age groups;
TAR $F(2,28) = 1.91, p < 0.05$

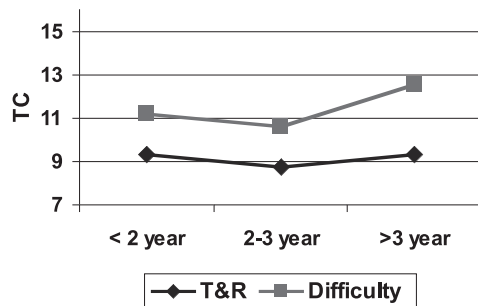


Figure 6.6 TC due to T&R and difficulties over time with timber buyers for market-assisted CFEs (n=19; TC range from 0-20)

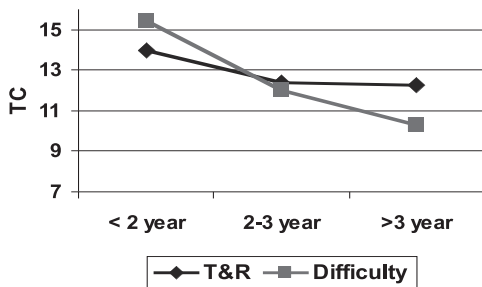


Figure 6.7 TC due to T&R and difficulties over time with the Forest Service for NGO-assisted CFEs (n=31; TC range from 0-20)

Test results One-Way Anova: between age groups;
Difficulty; $F(2,28) = 6.23, p < 0.01$

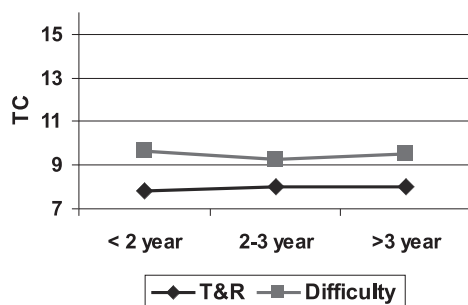


Figure 6.8 TC due to T&R and difficulties over time with the Forest Service for market-assisted CFEs (n=19; TC range from 0-20)

6.4 The transaction costs incurred under contractual arrangements with the market

CFEs engage in a wide range of contractual arrangements with the market, selling different tree species, in different stages of processing, to different types of buyers. Also the secondary conditions of contracts vary, with more or less capital investment from buyers and different contract lengths. Figure 5.5 (chapter 5) showed that the main differences in the contractual arrangements between the CFEs and timber buyers can be traced back to the source of financing for the forest management plan. CFEs that received financing from NGOs, or obtained capital from an independent third party, engage in short term (< five years) timber sale contracts. Most of the CFEs that engage in short term timber sale contracts assume (at least) part of

the responsibility for forest management and logging activities. Most commonly they assume responsibility for developing logging plans and reports, for tree felling and (less often) open up trails in the forest for extracting the logs. Some CFEs also extract the logs, transport them to the sawmill and/or process the logs. These are exceptional and will be referred to as 'vertically integrated' or 'integrated' CFEs. By contrast, CFEs receiving finance from private enterprises engage in long term (5-30 years) timber sale contracts. These CFEs normally outsource their forest management and logging activities to the private timber enterprises, which means that they primarily just negotiate a timber sale contract with the private enterprises although on occasion some CFEs monitor logging activities. These CFEs will be referred to as the 'outsourcing' CFEs.

This section analyses the transaction costs aligned to the contractual arrangements with the market. First, it compares the transaction costs incurred by outsourcing and integrated CFEs. Secondly, it compares the transaction costs incurred by those CFEs that sell standing trees and those that sell processed logs. Thirdly, it examines how the transaction costs develop over time.

Figure 6.9 shows that integrated CFEs expend significantly more time and resources on market transactions than outsourcing CFEs. The resources spend on dealing with difficulties encountered in the market is, however, similar for both groups. This result is similar to the comparison between the NGO-assisted and market-assisted CFEs (presented in figure 6.3) as most NGO-assisted CFEs are integrated CFEs and most market-assisted CFEs outsource forest management and logging activities. Outsourcing CFEs negotiate and sign long term timber sale contracts and have relatively little further dealings with timber buyers. The high expenditures on market transactions by the integrated CFEs are due to: (1) contract duration, (2) the number of timber buyers and (3) the level of timber processing. These aspects will be discussed below.

Contract duration is an important characteristic of timber sale contracts. Integrated CFEs sign contracts for one year, or sell the timber originating from one annual logging area. Only two of the 30 interviewed integrated CFEs signed timber sale contracts for longer periods. By contrast, the timber sale contracts of outsourcing CFEs last between one and 20 years. Outsourcing CFEs are obliged to sign longer term timber sale contracts since the enterprises make high asset-specific investments by paying for the forest management plan and infrastructure to extract timber. Private enterprises will not accept short term contracts if they have to make considerable investment, but use the longer term contracts to guarantee future benefits. Figure 6.10 clearly shows the relation between the level of investment made by private enterprises and the duration of the timber sale contracts with the CFEs.

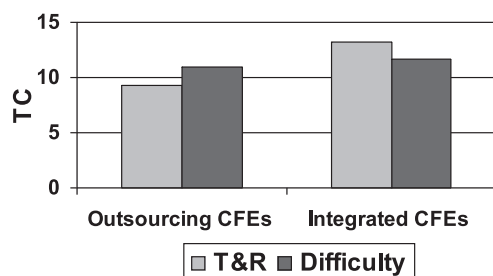


Figure 6.9 TC due to T&R and difficulties with the market for outsourcing (n=20) and integrated (n=30) CFEs (TC range from 0-20)

Test results One-Way Anova; $F(1,48) = 37.23$, $p < 0.01$

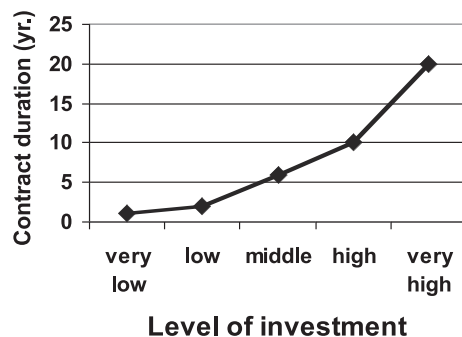


Figure 6.10 Relation between the level of private investment and the duration of timber sale contracts (n=47)

Test results One-Way Anova; $F(4,42) = 5.9$, $p < 0.01$

The capital required to start logging activities varies between regions. In the Santa Cruz Department most CFEs are located relatively close to an urban centre and secondary roads and old logging roads in the forest can be restored. In the departments of Pando and Beni, the network of roads is very limited and constructing roads for access and timber extraction requires larger capital input. Enterprises in these regions have to make larger investments and demand longer term contracts. Moreover, they will only initiate forest management activities if the communities have a large enough forest area and sufficiently high quality timber. If the required capital input from the timber buyers is relatively small, they accept, and even prefer short term contracts and work with communities with smaller forest areas and lower quality timber.

Some enterprises convince the communities to sign a 20 year contract as the forest management plan is valid for 20 years. These enterprises consider that they have the right to exploit all the timber available within the community forest because they have financed the development of the management plan. Other enterprises propose shorter (i.e. ten years) term contracts because they expect to harvest all the available timber within this time period³. Other enterprises only finance an annual logging plan and sign a contract for the exploitation of a limited area of forest, which is generally one to two years. 35 per cent of the outsourcing CFEs in the sample do not yet have an approved forest management plan which explains why some of them have

³ In theory this is not possible under the current forest management regulations that consider a minimum logging cycle of 20 years. However, enterprises are allowed to split the annual logging area into separate discontinuous sub-areas which enables them to select the spots in the forest where commercial timber species abound. Less densely grown areas are left untouched or harvested from 'accidentally'.

⁴ Enterprises are not willing to invest in CFEs in all regions. They only invest in the regions where most valuable timber is available and where the lack of infrastructure forces them to make long term investments (especially Beni and Pando).

short term contracts. Asset specificity thus plays an important role, all the investments made by the private enterprises are highly specific. Enterprises are willing to invest in the CFEs but only if the communities accept long term contracts⁴.

Long term contracts are also used to guarantee future access to timber. Over time, private enterprises have started to realize that the forest areas granted to communities and indigenous people are not inaccessible for timber exploitation, as they expected, but that this has opened up new opportunities for timber exploitations for smaller and less politically connected enterprises. These enterprises were unable to access the state forest concessions under the former forest law and were forced to log timber under short term contracts or illegally. These enterprises can now access large forest areas by negotiating timber sale contracts with the communities that have been allocated land and exclusive forest user rights. In some areas, private enterprises have actually started to compete among each other for timber sale contracts with communities. In at least one case a private enterprise paid for a lawsuit that nullified the timber sale contract that a community had made with a competing enterprise. In this situation long term contracts are being used to guarantee future access to forest resources in an interesting 'battle' of redistribution over the access to forest resources.

Private enterprises make significantly lower investment in integrated CFEs than in outsourcing CFEs. Most integrated CFEs already have an approved management plan or an approved logging plan when they come to negotiate the timber sale contract with the buyer and therefore do not require major capital investment from the timber buyers. They do sometimes request advance payments or loans from the buyers to cover operational costs and, at times, the costs of developing a logging plan. Spot buying is rare, because CFEs need advance payments from buyers to fell the trees and extract the timber. CFEs rarely save enough capital to cover these initial operational costs themselves. NGOs sometimes see this as a shortcoming of CFE management but the CFE managers argue that they have to respond to community members and either distribute revenue received among the members or spend it on community projects. This pressure means that it is difficult for most CFEs to save money for future expenditure. CFEs that apply low capital-intensive artisanal processing methods for products such as electricity poles and fencing posts may sell these products on a spot market basis. These cases are rare (four to five cases) but their effects on contractual arrangements illustrate the effect of costly logging regulations.

Integrated CFEs thus do not have long term binding contracts with private enterprises and are free to sell timber to any interested buyer and change buyers whenever they want to renegotiate prices or contractual conditions. The transaction costs of these integrated CFEs with the market are higher because they frequently (re)negotiate timber prices and contractual conditions with their existing and potential buyers. The high negotiation costs associated with these market transactions are discussed later in this chapter. These integrated CFEs clearly

spend more time and resources on market transactions than outsourcing CFEs that establish a contract for several years and have little opportunity to renegotiate prices and/or contractual conditions.

Integrated CFEs may sell different timber species to different buyers, as some local sawmills specialize in processing and trading in certain timber species. Integrated CFEs sell their timber to significantly more timber buyers than the outsourcing CFEs. Apart from two exceptional cases, all the outsourcing CFEs have transactions with just one single buyer whereas, on average, the integrated CFEs sold timber to 3.5 buyers. The variation among the integrated CFEs is high due to variations in the local timber market that is adapted to the timber species within the area and the accessibility of the forest. Some integrated CFEs have started to push timber buyers to accept all the commercial timber species present in the forest, even at a lower average price, to avoid having to deal with multiple buyers at the same time. Due to ever increasing competition over access to forest resources, enterprises that initially refused to accept this request have had to change their policy.

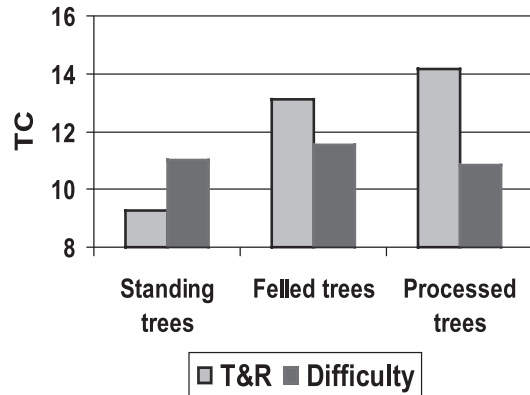
Another aspect that influences the transaction cost with the market is the product the CFEs sell. CFEs can either sell: (1) standing trees, (2) felled and debranched trees or blocks⁵ and (3) loaded, transported and/or processed logs. Outsourcing CFEs sell standing trees. Most integrated CFEs undertake primary processing activities, such as felling and debranching the trees and constructing roads into the forest. These activities do not require major external capital inputs but do require additional labour from community members.

This result is contrary to observations made in the field and the analysis of the CFEs managers themselves. CFEs selling processed trees seemed to incur higher transaction costs due to their high dependence on service providers for the necessary equipment. Many CFEs refrain from further processing activities precisely because the associated transaction costs are higher than any additional benefits. This does not show in figure 6.9 because only a few CFEs engage in timber processing. Moreover, their processing activities are limited and some CFEs use low capital-intensive processing techniques. The available information is thus not sufficient to substantiate the assumption that processing CFEs incur prohibitively high transaction costs, but this is one plausible explanation why so few CFEs engage in timber processing.

Another aspect that affects the costs of market transactions is the level of external mediation to which the CFEs have access. CFEs may receive mediation from NGOs, the Forest Service, through private contacts or through the services of independent forest consultants. The effect of NGO mediation is discussed later in this chapter. In the meantime Figure 6.12 presents

⁵ Blocks or “cuartones” are prepared with a chainsaw at the felling place in the forest. This activity is prohibited in Bolivia but is allowed in a certain areas because of accessibility problems (and is tolerated in other areas for reasons that are unclear).a

Figure 6.11 TC due to T&R and difficulties with timber buyers for CFEs selling standing trees (n=20), felled trees (n=21) and processed trees (n=7); TC range from 0-20)



the relation between transaction costs with the market and the level of external mediation between CFEs and timber buyers. It shows that mediators as a whole, including NGOs, have no significant influence on the resources spent by the CFEs in dealing with difficulties that occur during market transactions. The time and resources spent on market transactions initially increases when mediation increases but decreases when the mediation level increases further. This result indicates that external mediation initially stimulates the CFEs to spend more time and resources on market transactions and that at a certain level of mediation the time and resources spent by CFEs on market transactions declines again. This result can be interpreted in two different ways. First, that the mediators facilitate market transactions to such an extent that the CFEs do not need to spend further time and resources on market transactions and, second, that the mediators discourage the CFEs from investing additional time and resources and ‘take over’ some (or all) market interactions from the CFE managers. Later on in this chapter it is shown that market transactions always require a high input of time and resources from the CFEs in order to be successful. In consequence the second explanation is the more plausible.

The timber buyers that the CFEs deal with can be categorized into three broad groups. First, there is timber industry that operates at the national level, has sawmills located in the regions and facilities to process end products, such as furniture and ply wood (mostly for export purposes). Second, there are local and regional sawmills that sell to the industry and to urban processing plants that produce for the local market. Third, there are intermediaries who do not have processing facilities but contract the services of the local sawmills. It was expected that the timber industry would prove to be the more reliable partner for CFEs and that CFEs dealing with them would incur lower transaction costs. However the analysis shows no difference in the transaction costs that the CFEs incur with these three parties.

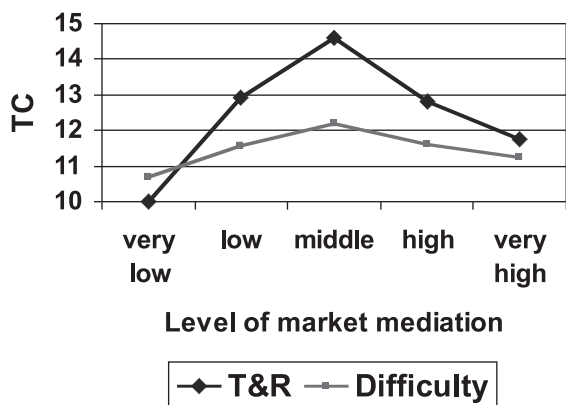


Figure 6.12 Relation between TC due to T&R and difficulties with the market and the level of external mediation (n=48); TC range from 0-20)

Test results One-Way Anova TC-T&R; $F(4,43) = 4.7, p < 0.01$

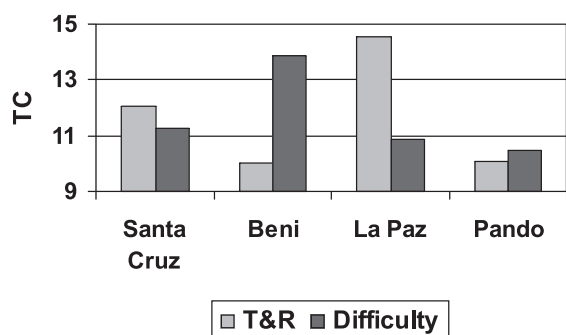


Figure 6.13 TC due to T&R and difficulties with the market by department (n=50; TC range from 0-20)

Test results One Way Anova TC-T&R; $F(3,46) = 5.23, p < 0.01$, TC-difficulty $F(3,46) = 2.65, p < 0.01$

The size of the market transaction costs is influenced by a variety of factors whose influence varies between the different departments, leading CFEs in different departments to experience different market transaction costs. Figure 6.13 shows that in La Paz the CFEs spend significantly more time and resources on market transactions. This is mainly because these CFEs have strong personal relations with the timber buyers and meet each other frequently and actively engage in the entire production process selling felled trees and processed timber. In Beni the resources spent on dealing with the difficulties encountered during market transactions was significantly higher than elsewhere. The timber market in Beni is mainly based around small-scale and illegal logging activities that are managed by a strong and 'untouchable' group of timber traders. The Forest Service facilitates the use of small-scale logging authorizations to prevent major conflicts with this group and NGOs⁶ have not dared to work on forest management issues in the area. The CFEs in this region have no negotiation power at all and nowhere to turn to when timber buyers fail to observe the contracts. Most CFEs that did initiate forest management plans in the south of Beni abandoned this approach and now engage in timber extraction through small-scale logging authorizations as demanded by the market. In Pando

⁶ With the exception of CIDDEBEN1

transaction costs are generally low because most CFEs outsource forest management activities. The difference in transaction costs between the departments cannot be attributed unilaterally to a small number of factors but are the result of a complex combination of available resources, infrastructure, NGO assistance, historical relations etc.

Summary

The level of investment that timber buyers make in CFEs has a considerable effect on the type of contractual arrangements that the CFEs can establish with the market as well as the market transaction costs they incur. The lower the level of investment, the shorter the duration of timber sale contracts and the higher the transaction costs of market transactions. The higher the level of investment, the longer the contract duration and the lower the market transaction costs. While it may seem contradictory, the CFEs with short term timber sale contracts invest more time and resources on interactions because they negotiate prices and contract conditions annually, sell timber to different buyers and need to coordinate their logging activities with the buyers extracting the timber from the forest. Equally, the older integrated (and mostly NGO-assisted) CFEs invest more time and resources on market transactions than younger CFEs because they integrate more forest management or timber processing activities in their enterprises. CFEs with long term timber sale contracts spend less time and resources on market transactions because they sign a contract once and have no further extensive dealings with the enterprises except to receive the revenues.

Both types of CFE spend a similar amount of resources in overcoming the difficulties that they encounter during market transactions. The costs and difficulties experienced by the integrated CFEs decline significantly as they obtain more experience. Integrated CFEs that negotiate new contracts almost every year and interact with a variety of market players clearly learn to 'play the game'. To operate successfully, the CFE managers need to invest in the transactions with their buyers and thus the time and resources they spend on market transactions should be considered as an investment rather than a cost. Mediation by third parties influences the time and resources that CFEs spend on market transactions but hardly influences the costs incurred by the difficulty that they encounter. High levels of external mediation may reduce the investments in market transactions, but can also be detrimental to the development of the CFEs. Regional differences in the characteristics of the timber markets influence the time and resources that CFEs spend on market transactions and in solving difficulties.

6.5 The transaction costs incurred under contractual arrangements with the Forest Service

The contractual arrangements between CFEs and the Forest Service do not vary much because the conditions for, and characteristics of, the arrangements, i.e. the forest management plan and logging plan, are defined by the Forest Law and regulations. Any differences in transaction

costs experienced by CFEs are therefore only partially attributable to the type of contractual arrangement that they have with the Forest Service. As shown in chapter 4, rural people have the option of engaging in different types of contractual agreements with the Forest Service, they can log timber based on small-scale logging authorizations, and these authorizations are likely to bring about less transaction costs than the large-scale management plans applied by CFEs. A comparison of all possible contractual arrangements with the Forest Service is not possible though, as the users of small-scale logging authorizations have not been included in this study. A comparison of the transaction costs incurred under these different arrangements with the Forest Service could shed more light on forest use decisions.

All CFEs engage in large-scale, long term forest management plans. The difference between the CFEs is that some are recently established and base their logging activities on an annual logging plan whereas others base their logging activities on approved forest management plans. As explained before, the Forest Service allows communities interested in developing a forest management plan to draw up a logging plan and use the revenues from these timber sales to develop the management plan. This logging plan is generally referred to as a logging plan 'on account of' a forest management plan. The Forest Service normally requires the management plan to be submitted within three months after approval of the logging plan.

Because logging plans are easier and cheaper to develop than management plans, one might expect that CFEs operating with a logging plan incur lower transaction costs with the Forest Service than CFEs operating with a forest management plan. However, the analysis shows that the transaction costs with the Forest Service are similar for both groups. This result is consistent with the observations in the field. Whereas it may be easier to develop a logging plan, the CFEs that aim to finance a management plan from revenues generated from a logging plan have to develop a management plan immediately after the logging plan has been approved. The three month time period that they have to develop the management plan is too short to sell the timber, cash the payments, undertake a forest inventory, analyze the data and develop the plan. CFEs rarely submit their plan within three months and if the forest officer decides to apply the rules strictly, he could freeze the release of transport permits which would mean the CFEs had no further income stream to continue developing the management plan. Negotiations on the time frame for submitting the management plan are common and require the cooperation of the forest officers. One private enterprise financing the development of a community management plan managed to negotiate very well and was given an entire year to submit the management plan.

Although all CFEs need to elaborate a forest management plan, the requirements for these plans are not exactly the same for all rural communities. CFEs are located in indigenous communities or territories have to comply with an additional set of 'social-economic' requirements that aim to guarantee democratic decision making and equitable benefit distribution among the

collective landowners. This requirement does not exist for farming communities as farmers are not considered to own land collectively; and for them the forest management regulations are therefore similar to the regulations for private land owners. The National Forest Service tried to rectify this situation by imposing the same regulations on farmers' communities but this amendment has never been applied by the regional officers authorized to approve the farmers' management plans.

Figure 6.14 shows that the CFEs located in indigenous territories incur significantly higher transaction costs with the Forest Service than CFEs from indigenous and farmers' communities. Often indigenous communities are legally registered as farmers' communities and are therefore not required to elaborate the additional set of socio-economic requirements. Moreover, the evaluation and approval of the management plans from farmers' communities are done locally and do not require the CFE managers to travel extensively. The forest management plans of CFEs located in indigenous territories were evaluated at the national office of the Forest Service and authorization was only decentralized to the departmental in 2003 and local level in 2006. The CFEs located within the indigenous territories have always had to comply with the additional set of socio-economic requirements that, as explained in chapter 5, represent an additional and laborious task. These differences in requirements and the place of approval of the management plans are the two main factors that explain the difference in transaction costs between CFEs from different types of communities.

The transaction costs with the Forest Service incurred by the CFEs seem to be influenced more by the mediation activities of NGOs and private enterprises than by the type of contractual arrangement. The degree and type of assistance and mediation from external parties is particularly important because the communities do not have the capital or human resources to develop their own management plans independently. Private enterprises and NGOs fill this gap by financing and developing the plans. Figures 6.2 and 6.3 showed that the transaction costs with the Forest Service are significantly higher for NGO-assisted CFEs than for the market-assisted ones and that this group expends more time and resources on transactions with the Forest Service. This was explained by the fact that NGO-assisted CFEs undertake many of the bureaucratic processes themselves, with assistance from the NGOs, whereas market-assisted CFEs outsource these

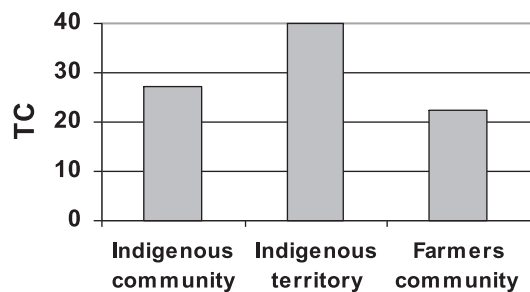


Figure 6.14 TC with the Forest Service by CFEs from different types of communities (n=50; TC range from 0-100)

Test results One-Way Anova: $F(2,47) = 6,577$, $p < 0.01$

activities to private enterprises. The managers of NGO-assisted CFEs interact with the Forest Service on a regular basis, especially during the logging season, to have their management plan, logging plans and logging reports approved, to obtain timber transportation permits and to pay taxes. The managers of market-assisted CFEs visit the Forest Service only occasionally to sign the documents that entitle the private enterprises to log from the community forest and undertake all bureaucratic processes in the communities' name. Although the market-assisted CFEs do not incur high transaction costs with the Forest Service, the private enterprises that elaborate the forest management plan for the communities might encounter similar transaction costs as the NGO-assisted CFEs – although these costs have not been considered in this study.

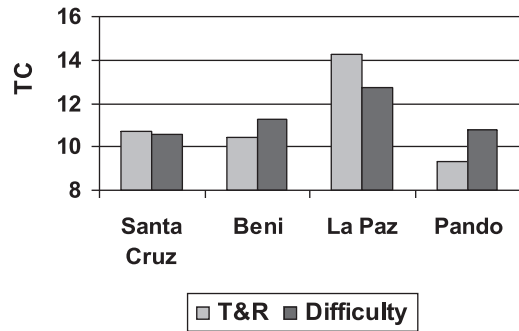
As shown in figure 6.5 there is a significant decline over time in the costs incurred by NGO-assisted CFEs in dealing with the difficulties, while this is not the case for market-assisted CFEs. The younger and less experienced CFEs encounter more problems, especially when they are developing a forest management plan. The management plan can therefore be considered a major entry barrier for communities wishing to initiate a CFE. Once the management plan has been approved, interaction becomes easier and in several regions forest officers and CFEs have developed mutually trusting relationships. This improvement in relations might be an indication of changing institutional conditions although it is still very dependent on the attitudes of local officers.

Whereas the transaction costs with the Forest Service incurred by the market-assisted CFEs is generally low, this changes if these CFEs decide to dissolve their timber sale contracts with the private enterprises before the end of the contract term. Then they usually approach the Forest Service to search for assistance to dissolve the contract, indicating the irregularities committed by the private enterprise. However, according to the law, even though logging activities have been outsourced, the CFE is still responsible for the implementation of the forest management plan as they are the legal owners of the forest. Rather than receiving assistance from the Forest Service to solve the irregularities caused by the private enterprises, they CFEs might even get into trouble over regularities they did not commit.

One of the main reasons for the NGO-assisted CFEs to fell trees themselves, rather than to outsource this activity to private enterprises (besides the generation of work in the community) is that private enterprises often fail to comply with forest management regulations. Private enterprises only harvest the best trees, change the number tacks to log better quality 'seed trees' rather than those assigned for logging, do not respect the regulations on reduced-impact logging and therefore often get the CFEs into trouble with the Forest Service. Several market-assisted CFEs have been immobilized for years due to these kinds of problems but many also consider resuming forest management activities at the moment.

Figure 6.15 TC with the Forest Service, by department (n=50; TC range from 0-20)

Test results One-Way Anova: for TC-T&R: $F(3,46) = 4.1$, $p < 0.05$



Lastly, it is clear that relations between the CFEs and the Forest Service are not the same in all regions. Figure 6.15 shows that CFEs in La Paz spend significantly more time and resources on interacting with the Forest Service than CFEs in other departments. Also the costs incurred in dealing with difficulties are relatively higher for CFEs located in La Paz. This can partly be explained by these CFEs continuously interacting with the local forest officers but also because the officials in La Paz have been much more rigorous and pernickety in evaluating management plans. The CFEs in Pando incurred the lowest costs of all, as most of them outsource all their management activities.

Summary

The difference in transaction costs with the Forest Service cannot solely be attributed to differences in contractual arrangements, although CFEs in indigenous territories do have to comply with additional requirements that significantly increase their transaction costs with the Forest Service.. The source of financing for the management plan does influence the size of the transaction costs that the CFEs incur with the Forest Service, with NGO-assisted CFEs incurring much higher transaction costs than market-assisted CFEs. This is due to the more active role of the NGO-assisted CFEs in developing and implementing the management plans. NGO-assisted CFEs interact frequently with the Forest Service and therefore manage to build up trusting relations. The resources spent on dealing with difficulties with the Forest Service are significantly less among the older and more experienced CFEs. The transaction costs incurred in interacting with the Forest Service is especially high for CFEs located in La Paz, which seems to be far more meticulous in its bureaucratic procedures, a reflection perhaps of its status as the home of the national government.

6.6 The transaction costs incurred under contractual arrangements with NGOs

As discussed in chapter 2, the literature has paid very little attention to that fact that receiving assistance from an NGO does in itself generate transaction costs for a community. The literature seems to assume that all the activities that communities undertake with the NGOs are to the

communities benefit and neglects consideration that these activities also require investment of time and resources. A remarkable example of this oversight can be found in Mburu et al. (2003) who only consider the transaction costs that arise from coordination among community members and interactions between the community and state agencies.

This study includes the transaction costs with NGOs as part of the total transaction costs incurred by a community. Some of the transaction costs with NGOs will result from activities such as participating in meetings, training activities and evaluations. Other elements will reflect the resources spent on reconciling any differences between the development trajectory favoured by the community and that favoured by the NGO. While people may appear to agree with an NGO's proposals during community meetings subsequent discussions might arise in the community to clarify or challenge the meaning and implications of the NGO's proposals. So, in addition to analysing the transaction costs with NGOs, an additional question asked in this section is whether certain contractual arrangements between CFEs and NGOs are associated with lower or higher transaction costs between the CFEs and other parties. NGOs are, after all, said to reduce the transaction costs with external actors.

Not all NGOs work with the CFEs at the same level of intensity. This might be for practical reasons, an NGO might be located a long way from a community or have budget constraints, or because the NGO considers that more or less assistance serves the CFEs better. Figures 6.16, 6.17 and 6.18 show the effect of the level of NGO assistance on the transaction costs that CFEs incur with the Forest Service, timber buyers and the NGOs themselves. The intensity of assistance from the NGOs does not significantly change the transaction costs incurred by the CFEs in dealing with timber buyers or with the NGOs themselves but it does significantly influence transaction costs with the Forest Service.

CFEs that receive more assistance from NGOs have lower transaction costs with the Forest Service. In this respect then NGOs play an important role as mediators between the CFEs and the Forest Service and this partially supports the theoretical assumption that NGOs lower the transaction costs of interaction with external parties. On the other hand, when the transaction costs, and especially the time and resources that the CFEs spend on interaction with the Forest

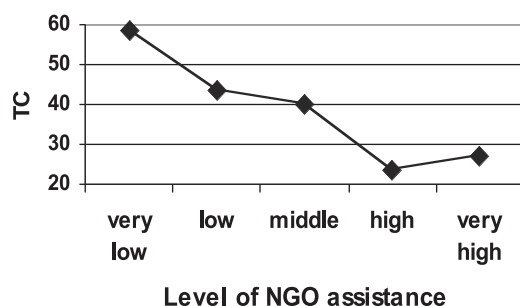


Figure 6.16 TC with the Forest Service for different levels of NGO assistance (n=31; TC range from 0-100).

Test results One-Way Anova: $F(4,26) = 3.857$, $p < 0.05$

Figure 6.17 TC with timber buyers for different levels of NGO assistance (n=31; TC range from 0-100)

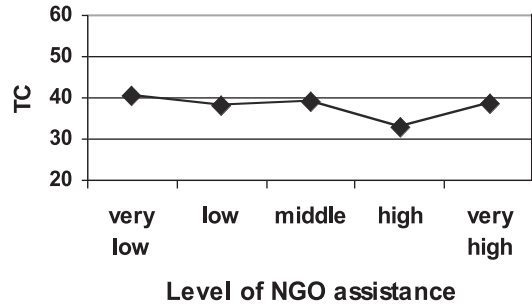
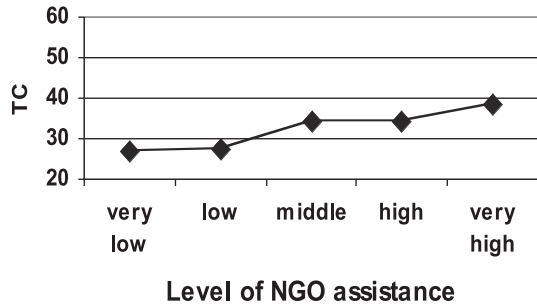


Figure 6.18 TC with NGOs for different levels of NGO assistance (n=31; TC range from 0-100)



Service, reaches very low levels, this might also be taken as indication that the NGOs are taking on activities that might affect the independence of the CFES.

The transaction costs that CFES incur with the market fluctuate at around the same average for all levels of NGO intervention. While NGOs do mediate in the interactions of CFES and the Forest Service, they do not do so in the interactions of CFES with the market. It is interesting to compare this result with those in figure 6.12 which showed that market mediation by external parties did affect the transaction costs that CFES incurred with timber buyers. Thus it would seem that NGOs do not have the same influence as other external parties mediating market transactions. This reflects the nature of NGOs that are more focussed on the group of people they work with, i.e. the communities and farmers, and are less familiar with the private sector.

NGOs also rely very much on formal institutions to facilitate relations between timber buyers and CFES in a setting that is characterized by informality. NGOs, for example, emphasise the need for timber sale contracts that are 'as complete as possible'. Complete contracts are expensive to develop as they need to anticipate all possible contingencies. In addition, they are almost impossible to enforce because legal contract enforcement mechanisms are too expensive and unreliable to use. NGOs also advise the CFES to request official payment guarantees such as open bank cheques from timber buyers. The combination of these issues tends to scare buyers away more than motivate them to do business with the CFES.

In this sense, Fafchamps (2004) observed that, in insecure environments, it is important to recognize the difficulties that exchange partners might face in complying with contracts and to maintain understanding and trusting relationships (to assure future exchange opportunities) rather than pursue punitive sanctions. He argues that imperfect compliance is often related to the prevailing level of economic development. Perfect compliance is an ideal that is out of reach for clients, suppliers and entrepreneurs and should not (always) be regarded as evidence of opportunistic behaviour but rather as a manifestation of flexibility and complicity between trusting parties (Fafchamps 2004). CFE managers often understand this very well and argue that they do not mind enterprises failing to meet the terms of their contracts now and then as this also gives them the 'room' to fail sometimes. CFEs can most usefully be assisted in dealing with timber buyers means by accepting the use of relational rather than formal contracts and the existing informality in the sector and assist the CFEs to play the game accordingly. Former NGO personnel often continue to become independent forest consultants, acting as mediators between communities, farmers, CFEs and timber buyers. In this position they have to operate on the 'real' timber market and without the ideological baggage employed by the NGOs can often assist local people much more effectively.

Figure 6.18 shows that the transaction costs that CFEs occur with NGOs increase for higher levels of NGO assistance, although this increase is not significant (due to the high variation between the CFEs). When the level of NGO assistance is high CFE managers and community members are likely to participate in a more meetings, courses, evaluations etc. On the other hand, the NGO also has more possibilities to influence the development of the CFEs. The danger of NGOs becoming so dominant that the CFE managers hardly dare to take decisions by themselves is a well known issue in development cooperation (see for example Bijman and Ton 2008).

While CFEs are assisted by different types of NGOs (human rights, environmental and agricultural) with different objectives, the transaction costs that the CFEs experience with these different types of NGOs does not vary much. One interesting detail is that recently established CFEs (< two years old) working with environmental NGOs experience significantly

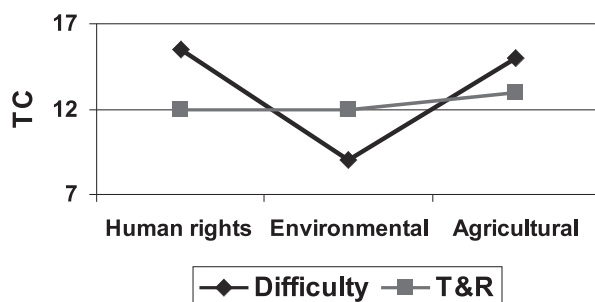
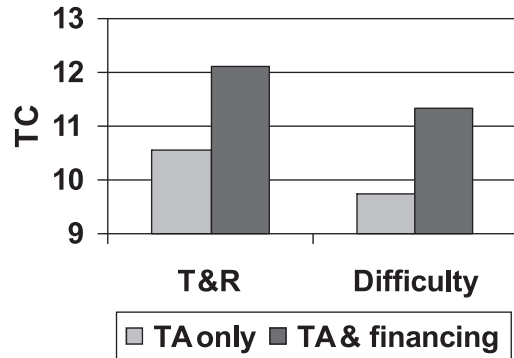


Figure 6.19 TC due to T&R and difficulties with the market for new CFEs (<2yr, n=5) working with different types of NGOs

Test results One Way Anova: $F(2,2) = 96.6$, $p < 0.01$

Figure 6.20 TC due to T&R and difficulties with NGOs for CFEs that receive technical assistance (TA) only (n=11) and CFEs that receive TA and financing (n=20; TC range from 0-20)

Test results One-Way Anova: TC-T&R; $F(1,29) = 3.810$, $p < 0.1$, TC-Difficulty: $F(1,29) = 4.807$, $p < 0.05$



lower transaction costs due to difficulties with the market than recently established CFEs assisted by human rights or agricultural NGOs (see figure 6.19)

Although seemingly unimportant, this result is indicative of a difference in approach between the NGOs. The environmental NGOs deal with many different societal actors, including private enterprises, to reach their goals. Human rights and agricultural NGO are more focussed on the communities and farmers themselves and have less experience in working with other parties in the forest sector, particularly private enterprises. These NGOs seem to have been unable to, at least initially, facilitate market relations for recently established CFEs.

Another aspect that significantly influences the size of the transaction costs between NGOs and CFEs is the type of assistance offered by the NGOs. CFEs that receive financing for the forest management plan incur significantly higher transaction costs with NGOs than CFEs that only receive technical assistance and training (see figure 6.20). It seems that when an NGO finances a management plan they interact with the CFEs more intensely and possibly feels more entitled to request that the CFE complies with their ideas and propositions. As discussed before, when the ideas of NGOs and CFEs do not coincide, this might lead to a problematic relation and increase transaction costs for the CFE.

The transaction costs that CFEs incur with NGOs do change over time. Figure 6.21 shows that older CFEs incur significantly higher transaction costs with NGOs than recently established CFEs. This may indicate that the relation between NGOs and CFEs becomes more complicated as the CFEs develop. CFEs might develop in a different direction than envisaged by the NGOs which can cause discussions and sometimes even conflict between community members. NGOs might find it difficult to 'let go' and some CFEs have decided stop working with the NGOs to avoid further problems, preferring to contract in the professional services they need. CFEs that have been working with an NGO for several years on a broad range of issues are less inclined to abandon the relationship than CFEs that have only worked with the NGO for a short while or have only worked with them on forest management issues. This suggests that

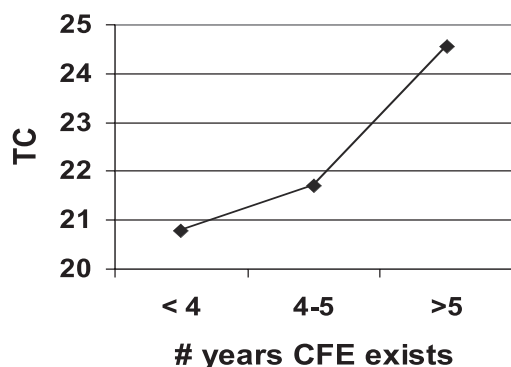


Figure 6.21 TC with NGOs over time (n=31; TC range from 0-100)

NGOs that establish long lasting relations with rural communities are more likely to influence CFE policies than other NGOs.

Summary

While Bolivian CFEs are assisted by different types of NGOs with different objectives, the transaction costs that the CFEs incur do not vary much. Interactions with NGOs do significantly reduce the transaction costs that the CFEs incur with the Forest Service. The significant reduction of time and resources that CFEs spend on transactions with the Forest Service when the level of NGO assistance increases suggests that NGOs might be assuming activities that the CFEs should undertake themselves to operate independently. NGOs do not affect the transaction costs that CFEs incur when engaging with timber buyers. This is notable as other research has indicated that external parties do affect the level of market transaction costs incurred by CFEs. NGOs are generally more oriented towards working with and for their direct client groups (the farmers, communities etc.) rather than with the private sector. While NGOs do advise on market issues their interventions have been found to be based more on theoretical rather than practical considerations. The study of Fafchamps (2004) on market institutions in Southern Africa shows that in informal contexts many assumptions on the functioning of markets do not hold in practice. The use of formal markets and open bank cheques to guarantee timber payments are examples of this. CFEs that received financing for their management plan incur higher transaction costs than the CFEs that receive (only) technical assistance and older CFEs incur higher transaction costs with the NGOs than younger CFEs. CFEs may decide to terminate their relationship with an NGO if the transaction costs become too high. However, this seems to only apply to NGOs that do not have a long term and multifaceted relation with the communities.

6.7 The transaction costs of information gathering, negotiation, enforcement and compliance

This section analyses the transaction costs incurred that are associated with different transactional activities i.e. information gathering, negotiation, enforcement and compliance. To assess the costs of the transactional activities both the time and resources (T&R) spent on the activities, as well as the resources required to deal with difficulties, are considered. Information costs are the costs of gathering information. The activities considered within this category include the costs of finding timber buyers, discovering prices for timber, possible contractual conditions, getting to know the rules and regulations of the Forest Service and discovering the conditions of the NGOs. Negotiation costs describe activities such as ex-ante discussions about contract conditions as well as ex-post adaptations and renegotiations of contracts. As indicated before, the term contract is applied in a broad sense and includes all verbal and written agreements between CFEs and their exchange parties. Enforcement costs include all activities undertaken to ensure that the other party complies with the contract. These activities may include taking legal action but more usually boil down to frequent visits to 'remind' people about their responsibilities and seizure of equipment from enterprises who fail to pay for the timber. Compliance costs include all activities that CFEs undertake to meet the contractual conditions, such as following the rules on timber harvesting, fulfilling bureaucratic requirements, attending meetings with NGOs and delivering products on time.

The transaction costs associated with these activities have been defined by multiplying the time and resources spent on these activities by the resources spent on dealing with difficulties encountered and then summing the transaction costs of the activities with the different exchange partners. Table 6.2 shows the frequency distribution of the transaction costs of these different transactional activities. These frequencies do not differ significantly from the normal frequency distribution and can therefore be analyzed with parametrical statistical tests. All frequencies are positively skewed (higher scores on the left side) except for the costs of compliance (see figure 6.22).

Figure 6.23 shows the resources spent on the different transactional activities. This shows that CFEs expend significantly more resources on negotiating and the costs of the other activities

Table 6.2 Basic statistical parameters for the transaction costs of different transactional activities

Type of transaction costs (TC)	N	Mean	Min.	Max.	Std. dev.	Kolmogorov Smirnov		
						Statistic	Df.	Sig.
TC of information gathering	50	23.16	4.5	54.00	11.17	0.110	50	0.180
TC of negotiation	50	26.38	9	52.5	10.90	0.116	50	0.091
TC of enforcement	50	23.64	4.5	55.5	11	0.092	50	0.200
TC of compliance	31	22.03	6	37	7.98	0.077	50	0.200

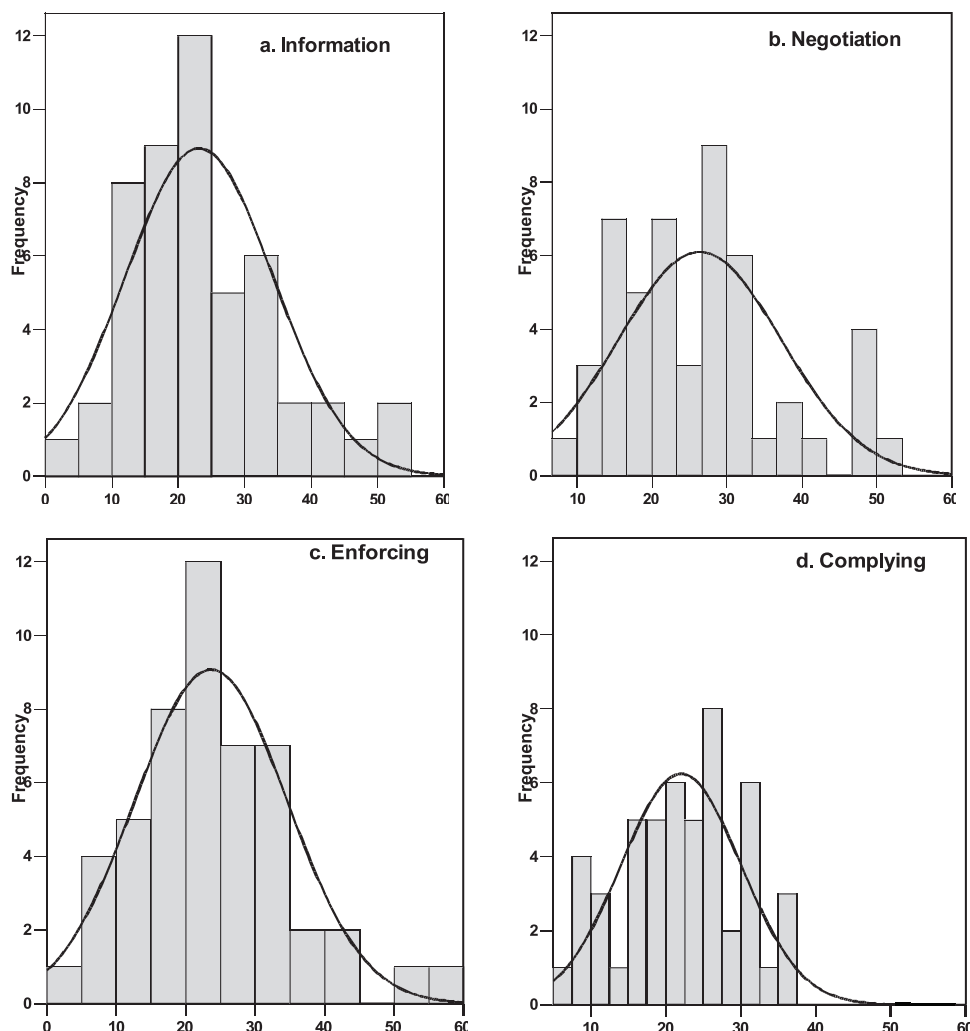


Figure 6.22 Frequency distribution of the TC for information gathering (a); negotiation (b), contract enforcement (c), and contract compliance (d), all including the normal distribution curve (TC range from 0-75)

are broadly similar. These results do not completely conform to expectations. As the CFEs have been recently established and are still in a development phase, they were expected to expend more resources on information gathering. Due to the frequent occurrence of contract breaching, enforcement costs were also expected to be relatively higher.

Information costs were expected to be high because most CFEs are new and need information about rules and regulations and market information to run their enterprises. There are three reasons why information costs are not higher than the costs for other activities. First, information on state regulations is brought to the CFEs by NGOs and private enterprises, so

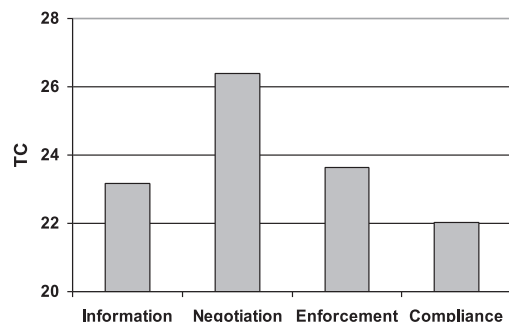
the CFEs do not directly bear the costs of gathering information. Second, activities with the explicit objective of gathering information are not generally considered worthwhile, as CFE managers do not expect to be given trustworthy information. Third, CFEs use more informal and 'casual' methods of information gathering, such as talking to people when drinking a beer, during a football match etc. although they do not consider these activities as 'information gathering.' Low expenditure on information gathering shows that CFE managers do not spend many resources on deliberate information gathering activities but understates the extent of informal information gathering activities.

For the NGO-assisted CFEs, the resources spent on dealing with the difficulties encountered in gathering information reduce significantly over time. By contrast the market-assisted CFEs spent more resources dealing with difficulties over time (see figure 6.24). The increase of these costs for market-assisted CFEs is not significant ($p < 0.1$) but indicative that market-assisted CFEs start gathering information at a later stage, when problems with the timber buyers or the Forest Service arise. NGO-assisted CFEs, on the other hand, find it increasingly easy to gather information. This is probably because many of them join regional associations that provide them with the opportunity to (informally) exchange information about the trustworthiness of timber buyers, timber prices etc. NGOs also finance CFE managers to participate in national meetings and congresses with the private and public sector where the managers receive additional information and have the opportunity to negotiate with other actors. The establishment of networks with other CFEs and other actors in the forest sector greatly facilitates the distribution of information among the NGO-assisted CFEs. Market-assisted CFEs have very limited access to these networks.

Negotiation costs are significantly higher than the cost of other transactional activities. The main reason for this is that CFEs tend to solve contractual problems through extensive negotiation rather than through enforcement mechanisms. Transactions with timber buyers and NGOs are characterized by extensive, mostly ex-post, negotiations between the contracting parties. Parties initially loosely agree on contractual conditions treating the contract as a document that establishes intentions rather than actual rights and obligations. Negotiations start as soon

Figure 6.23 TC for different transactional activities (n=50; TC range from 0-75)

T-Test results: TC negotiation > TC information: $t(49) = 2.38$, $p < 0.05$; > TC enforcement: $t(49) = 2.66$, $p < 0.05$; > TC compliance: $t(49) = 3.11$, $p < 0.01$



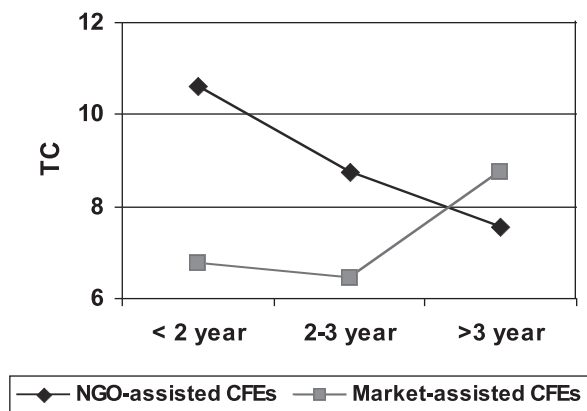


Figure 6.24 TC due to difficulty of information gathering for NGO- and market-assisted CFEs over time (n=50; TC range from 0-15)

as the parties start implementing the contracts. Contract conditions are renegotiated in the light of practical conditions and the existing opportunities. This constant (re)negotiation of contracts may also explain why the costs of negotiation does not change over time and is not reduced by NGO mediation.

As contract breaching is a general problem for all CFEs, and all other enterprises in Bolivia, it was expected to see relatively higher transaction costs for contract enforcement. However, the costs of contract enforcement are relatively low because the CFEs have very limited possibilities to enforce contracts through the courts or any other legal conflict resolution mechanism. Going to court to enforce a contract is an expensive and lengthy procedure. Moreover, the outcome of court cases is unpredictable and depends largely on the financial capacity to hire specialized legal assistance. CFEs that have tried to solve a contractual problem through court have generally spent more resources on the procedure than that they gained. In one case, for example, the CFE won the trial but the verdict was never implemented. Enforcement does take place but through the use of less conventional enforcement methods such as constant harassment, the seizure of machinery and road blocks. Use of these practices is quite common in Bolivia.

The costs associated with contract compliance are also relatively low. This can partly be explained by the fact that the CFEs that sell standing trees and let private enterprises do all the logging and management activities have only a few responsibilities to comply with. These CFEs are legally responsible to the Forest Service, however, and are occasionally held responsible for irregularities committed by the private enterprises. While the CFEs should monitor the logging activities of the enterprises this is hardly ever done in practice. The managers of one CFE commented that the timber buyer would always cease logging, using some excuse (the truck broke down) whenever community members entered the forest to check on logging activities and only reinstate logging when they were gone⁷. As the forest areas are vast and often located far

⁷ This particular CFE decided to dissolve the timber sale contract in the meantime.

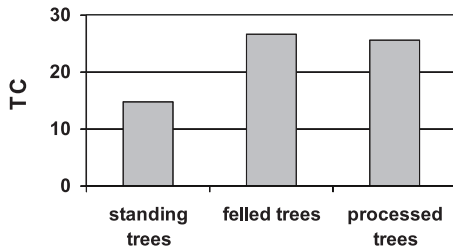


Figure 6.25 TC of contract compliance for CFEs selling standing, felled and processed trees (n=50; TC range from 0-75)

Test results One-Way Anova: $F(2,45) = 27.6, p < 0.01$

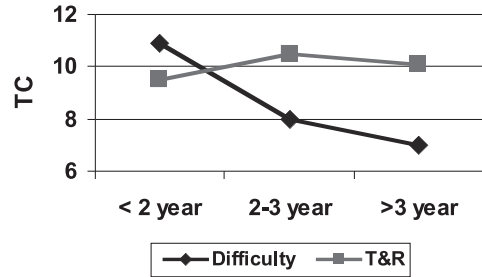


Figure 6.26 TC of contract compliance by integrated CFEs over time (n=30; TC range from 0-75)

Test results Anova TC-difficulty CFEs: $F(2,27) = 17.79, p < 0.01$

from the communities, staying in the forest to monitor the activities of the enterprise, especially when nothing is going on is costly, tiring and hardly ever done. In another case a timber buyer got fed-up with constant accusations of alleged irregularities committed by him and decided to refrain from logging whenever there was nobody from the community present in the forest.

The CFEs that sell felled or processed trees have responsibilities to comply vis-à-vis timber buyers, the Forest Service and, in most cases, the NGOs. Their compliance costs are significantly higher than those of the CFEs that sell standing trees (see figure 6.25). Compliance with state regulations, the on-time delivery of timber and payments for professional services all require time and resources. In particular the CFEs that sell soft timber, which is vulnerable to fungi attacks if left in the forest for more than few days, have strict extraction schedules to comply with. Figure 6.26 shows that the time and resources spend on contract compliance remains relatively constant over time but that the resources spent on dealing with difficulties reduce significantly for the integrated CFEs that sell felled and processed trees.

The costs of these different activities with different exchange parties also vary, as the characteristics of the different partners influence the type of negotiations that are possible. As the CFEs have to comply with the regulations of the Forest Service and are sensitive to authority they might be less inclined to enter into discussion with forest officers than with timber buyers. The relation they have with NGOs is ambiguous. Some argue that the NGOs come to help the community and that they cannot be criticised for trying to do good. Others, who have negotiated with NGOs before argue that the NGOs obtain funding on their account and should therefore do what the community wants them to do.

Figures 6.27 and 6.28 show the transaction costs incurred for the different transactional activities by the NGO- and market-assisted CFEs with the Forest Service, timber buyers and NGOs respectively. The most striking result is that the costs of enforcing contractual

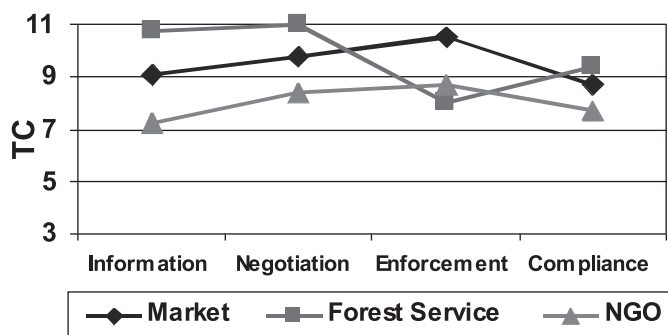


Figure 6.27 TC of transactional activities with the Forest service, timber buyers and NGOs for NGO-assisted CFEs (n=31; TC range 0-25)

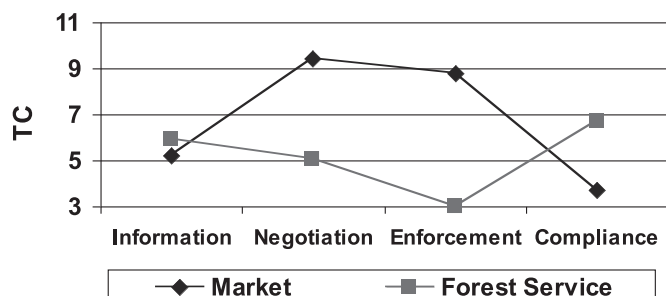


Figure 6.28 TC of transactional activities with the Forest Service and timber buyers for market-assisted CFEs (n=19; TC range from 0-15)

arrangements with the Forest Service are significantly lower than the transaction costs of other activities. This is mainly because the CFEs generally do not perceive the management plans as a contractual arrangement with rights and obligations for both parties and thus do not demand that the Forest Service complies with its obligations. Equally the CFEs know that the Forest Service does not have the manpower or the materials to meet their responsibilities and prefer to offer their assistance to, for example, in combating illegal logging, rather than seek to hold the Forest Service responsible for carrying out these activities. Lastly, community members have a great respect for state authorities and respect the decisions taken by forest officers.

The market-assisted CFEs incur higher transaction costs with the market for negotiating and contract enforcement, while their costs of compliance are higher for their dealings with the Forest Service. This is because these CFEs have very little interaction with the Forest Service until a problem arises, explaining the higher cost of compliance with forest management regulations.

6.8 Conclusion

The objective of chapter 6 was to analyze the transaction costs that CFEs incur under the different contractual arrangements with their exchange partners. The transaction costs are considered to be an indicator of the degree to which the institutional environment facilitates or hinders CFE performance. The chapter has analysed the transaction costs incurred with different exchange partners and the cost of the different transactional activities: gathering information, negotiation, enforcement and compliance.

The comparison of the transaction costs between the different contractual arrangements shows that CFEs that outsource all management activities incur much lower transaction costs than those that implement forest management activities themselves. From a transaction costs perspective, the market assisted CFEs may have chosen the best arrangement to engage in forest management. However, when analyzing the transaction costs further, the NGO assisted CFEs spend more time and resources on transactions with the market and the state whereas the market-assisted CFEs spend more resources on dealing with difficulties. Moreover, over time, the resources that the NGO assisted CFEs spend on difficulties encountered in interactions with the state and the market declines significantly, whereas these costs remain similar or even increase for the market assisted CFEs. It seems, therefore, that the time and resources that the NGO assisted CFEs invest in their transactions with the market and the state eventually lead to 'normalized' transactions. They still require time and resources but are not as problematic as they were before. NGO assistance reduces the CFEs' transaction costs with the Forest Service but not with the market. Other external mediators such as forest professionals manage to reduce the transaction costs with the market. In both cases it appears that intense mediations reduce the time and resources that the CFEs themselves spend on transactions, which may be detrimental on the long run.

Negotiation costs are significantly higher than for the other transactional activities. This is in line with theoretical observations on how markets that lack adequate formal contract compliance mechanisms function. Enforcement costs are significantly lower with the Forest Service. CFEs may request the Forest Service to comply with its obligations but the type of relationship does not allow for further enforcement activities. Market assisted CFEs face lower compliance costs because they have fewer contractual commitments. NGO assisted CFEs spend fewer resources on dealing with the difficulties of compliance but invest an equal amount of time and resources on complying with the market and the Forest Service.

The origin of the transaction costs plays an important role. The costs incurred due to the time and resources spent on transactions can be considered as investments in the exchange relationship. The resources spent on solving problems are more of an indication of the enabling or obstructing character of the institutional environment. Whereas the transaction cost theory

predicts that enterprises will search for contractual arrangements with lowest transaction costs, this does not seem to be the case for the CFEs. Rather, CFEs spend additional resources on market transactions to improve their performance. The choices the CFEs make are not directed at reducing costs, but more in trying to invest in a business opportunity that might give additional benefits in the future, through protecting the land and resources, forest conservation and actual and future timber sales. Moreover, all of the CFEs are relatively young and, as new undertakings, need to invest in themselves. Market assisted CFEs find themselves in a locked-in or path dependent position and will have to spend additional resources to change the contractual conditions.

The effect of transaction costs on CFE performance

7.1 Introduction

The overall objective of this study is to analyze the influence of the institutional environment on the constitution and functioning of Community Forest Enterprises (CFEs) in Bolivia. Transaction costs have been identified as indicator of the extent to which the institutional environment enables or obstructs the functioning of CFEs. According to the theory, high transaction costs are associated with an obstructive institutional environment that reduces the effectiveness of CFE performance. Low transaction costs are associated with an enabling institutional environment that enables CFEs to function effectively.

In chapters 4 and 5 it was shown that the institutional environment has a major impact on the establishment of CFEs and the development paths they follow. In chapter 6 it was shown that the transaction costs which CFEs incur with the Forest Service, the market and NGOs are highly dependent on the type of contractual arrangements that the CFEs enter into with these parties. Certain contractual arrangements lead to more expenditure on transaction costs by CFEs, others to lower transaction costs. It was also shown that high transaction costs are not always an indicator of negative performance as additional expenditure on transactional activities can also improve the functioning of CFEs. It was shown that the NGO-assisted CFEs incur much higher transaction costs than market-assisted CFEs mainly because they take more responsibility for forest management and logging activities. The market-assisted CFEs incur lower transaction costs but do very little to increase the economic benefits that they could obtain from the forest.

This chapter examines the relationship between the functioning of CFEs and the transaction costs that they incur. Whereas transaction costs theory generally assumes that enterprises search for the contractual arrangements that imply the lowest possible level of transaction costs (and thereby enhance profits), the evidence so far suggests that expending resources on transaction costs can actually improve the performance of CFEs. The questions that this raises are whether and how the observed variations in transaction costs incurred by CFEs relate to the effectiveness of their performance.

The functioning of an enterprise is a multidimensional concept that is difficult to capture with a single indicator. Whereas enterprises are normally judged upon their capacity to generate financial profit, most CFEs included in this study are relatively young and more concerned with building up their enterprises and 'making things work' than with maximizing financial profit. Thus, it does not seem sensible to assess CFE performance on their financial profit. Moreover, good quality and comparable information on financial profit is difficult or even impossible to obtain from such organizations. To assess CFE performance a set of indicators is used that relates more closely to the CFEs' core business. The main activity of all CFEs is logging and selling timber for the benefit of the collective forest owners. CFEs that perform well could be

expected to log the maximum allowed volume of timber¹, sell that timber at the highest possible price, continue logging year after year and keep the community (i.e. shareholders) satisfied. Based on these core activities four indicators are used that reflect different aspects of CFE performance. First, harvesting capacity; expressed as the harvested volume of timber as a proportion of the (legally) available volume of timber. Second, timber prices; defined as the average timber price per m³, which is used as an indicator of the CFEs' negotiation capacity. Third, continuity; expressed as the number of years the CFEs have been logging, which is an indicator for perseverance. Finally, accomplishment; expressed in the managers' assessment of the extent to which the CFE has achieved its objectives.

This chapter presents results for all four indicators to get an impression of the difference in the performance of CFEs. The relation between CFE performance and transaction costs are then analyzed by applying a regression analysis separately to each indicator. The results of these regression analyses are presented in the second part of this chapter. The last section draws conclusions on the importance of transaction costs for the performance of CFEs.

7.2 Harvesting capacity

The harvesting capacity (HC) of CFEs reflects how much of the annual allowable cut (the timber volume that they are authorized to harvest) they actually harvest. The annual allowable cut is calculated from the forest inventory and is 80 per cent of the mature trees of a specific tree species within the annual logging area. The harvesting capacity reflects two separate elements of performance: first, the ability of a CFE to realistically assess which tree species can be sold and second, its capacity to fell and extract trees from the forest.

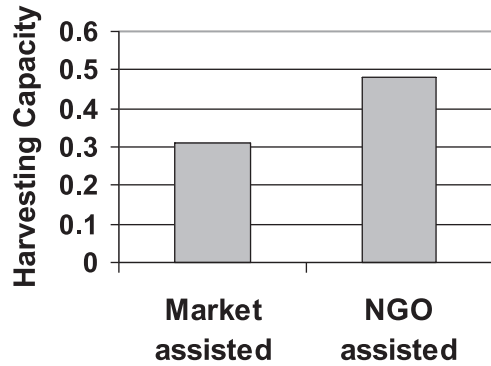
CFEs that expect to sell a wide range of trees species include all these species in their annual forest inventory. As the allowable cut is 80 per cent of the mature trees included in the inventory these CFEs will be allowed to cut more trees than CFEs that include only a small, but maybe more realistic, number of commercial trees in their inventory. Optimistic, and inexperienced, CFEs include more species in their inventory than they can sell because they do not know that there is no market demand for these species. They spend more resources on their annual inventory than CFEs that make a more realistic assessment of the saleable species. CFEs that include more species than they can sell therefore have a lower harvesting capacity. The CFEs that extract all of the timber they legally can have a productive capacity of 100 per cent.

Timber extraction requires capital to finance the preparatory activities and management skills to organize provisions, materials, people and transport. To extract timber from the forest,

¹ The timber volume that the CFEs are allowed to harvest, according to government regulations on sustainable forest management

Figure 7.1 The harvesting capacity of NGO- and market-assisted CFEs

Test results: One Way Anova: $F(1,46) = 6.699$, $p < 0.05$



access roads and (temporary) bridges have to be constructed or rehabilitated. Extraction roads have to be constructed and landing places opened up. Skidders are needed to extract the logs from the forest to the loading places, loaders are needed to lift the logs onto the truck or trailer that will transport the logs to the sawmill. In drier forests where trees are thinner, the logs can be extracted by a tractor but additional paths need to be opened up for the tractor, which cannot trample the under-story vegetation like a skidder. When a mobile sawmill is used, sawn timber is transported directly to the market which reduces transportation costs.

CFEs always depend on external parties to extract timber because: (1) they need forest professionals to develop and sign their logging plans and transportation permits, (2) they need advance payments to start logging operations and (3) they need machinery to construct roads and bridges and to extract and transport the logs. Because CFEs do not have these professional skills, capital and heavy machinery, they are often forced to outsource at least part of the timber extraction activities. Of the 50 CFEs included in this research 40 per cent outsource all their timber extraction activities through subsidiary contracts with private timber enterprises. 42 per cent of the CFEs sell felled trees in the forest and 14 per cent sell processed logs. Four per cent of the CFEs were not selling timber at the time of the study.

The average harvesting capacity of all the CFE was 0.42 (42 per cent of the timber volume they were allowed to harvest). Over the four years preceding this study the national average harvesting capacity of all parties involved in timber logging (including private landowners, farmers, communities, enterprises and concession holders) was 43 per cent². The similarity of these figures suggest that this data can be considered to be reliable. It also indicates that the harvesting capacity of CFEs is similar to that of other actors in society, contrary the widely held belief that CFEs lack the capacity to extract timber from the forest. The main difficulties

² Information extracted from the annual year reports of the Bolivian Forest Service: Superintendencia Forestal (2004) Informe Anual 2003. Santa Cruz, Bolivia, Superintendencia Forestal, Superintendencia Forestal (2005) Informe Anual 2004. Santa Cruz, Bolivia, Superintendencia Forestal.

that they face are in accessing investment capital and the availability and quality of the logging equipment, which may well be bottlenecks for the entire forest sector.

Figure 7.1 shows that NGO-assisted CFEs have a significantly higher harvesting capacity than market-assisted CFEs even though the NGO-assisted CFEs log slightly less than 50 per cent of the annual allowable cut. The harvesting capacity of market-assisted CFEs is a reflection of the amount of timber extracted from the community forest by the private timber enterprises, since market-assisted CFEs outsource all their logging activities and do not have any harvesting capacity themselves. Market-assisted CFEs do not define the timber volume extracted but depend on the harvesting capacity and/or willingness of the private enterprises. In areas where high quality timber species prevail, the private enterprises may make very selective use of the forest and only select the best quality highest value timber species. These selective logging practices thus lead to relatively low logging intensities in the forest areas of market-assisted CFEs.

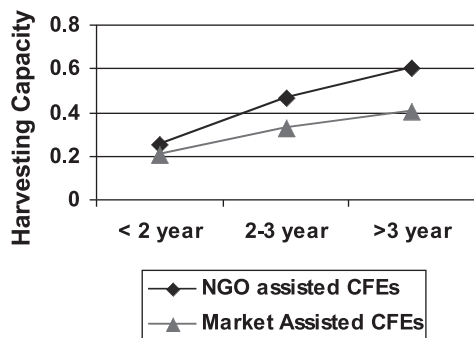


Figure 7.2 Improvement of harvesting capacity over time

Test results: One Way Anova for NGO-assisted CFEs: $F(2,28) = 4.091, p < 0.05$

In Bolivia it is widely assumed that CFEs do not have the same capacity to extract timber from the forest as private enterprises and that it would be better if they sign subsidiary contracts with these enterprises to do the work for them. This assumption is not correct. Moreover it is also considered that the timber industry has more capacity to extract and process timber than locally established saw mills. However, the data shows that CFEs which sell to the timber industry do not log more than CFEs which sell to local saw mills or to intermediaries.

Figure 7.2 shows that both NGO- and market-assisted CFEs have improved their harvesting capacity over time, although this increase is only significant for the NGO-assisted CFEs. Whereas both groups start with a harvesting capacity of approximately 20 per cent, after more than three years the harvesting capacity of the NGO-assisted CFEs has almost tripled and is 20 per cent higher than the harvesting capacity of the market-assisted CFEs. CFEs might improve their harvesting capacity in a number of ways: through the logistical organization of logging activities, ensuring availability of capital for operations, developing reliable exchange relations with timber buyers, ensuring use of good quality logging equipment etc. It is expected that

many of these improvements will also lead to a reduction of the transaction costs incurred by CFEs.

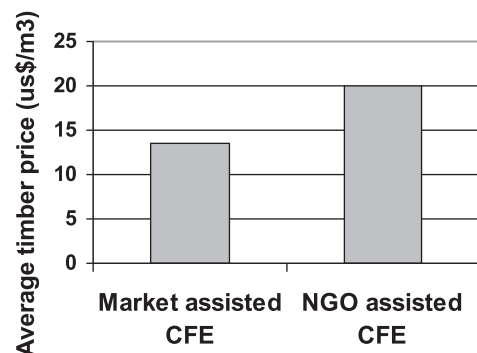
7.3 Timber prices

The timber prices that CFEs receive are expected to partly reflect their negotiation capacity; the better they negotiate the higher prices they receive. Timber prices are therefore a good indicator for CFE performance. Figure 7.3 shows that there is a significant difference in the average timber prices received by the NGO- and the market-assisted CFEs. This difference in price should not, however, be unequivocally attributed to the negotiation capacity of CFEs. Timber prices differ considerably between regions, timber species and products, making it difficult to directly judge the negotiation capacity of CFEs. Figure 7.4 shows the differences in timber prices CFEs receive from timber buyers.

The regional differences in timber prices can partly be attributed to the different characteristics of timber markets. In Santa Cruz timber exploitation has been going on for decades and the more valuable species, such as mahogany, cedar and oak, have largely disappeared. However, the area is relatively accessible and well connected to the national timber markets and industry (plywood) in Santa Cruz and the international markets in Brazil and Argentina. The tropical forest areas in the La Paz department have been far less exploited than the forests in Santa Cruz. The road connection between the lowlands and the capital city is passable but of poor quality. There is high demand for timber in La Paz, with the timber industry requiring good quality species for exporting processed timber (La Paz is relatively close to Chile's seaports) and string demand for lower grade and cheaper timber for the local construction market. As La Paz is located at high altitude, a wide range of timber can be used for construction purposes as it is not susceptible to infestation by insects. CFEs that sell to the market in La Paz can therefore sell a wider range of species, although they receive lower prices for their timber. Pando can be considered the 'forest exploitation frontier'; large scale timber extraction is relatively new in this area and valuable tree species are still available. However, roads and bridges to cross

Figure 7.3 The average prices for timber received by NGO and market assisted CFEs

Test-results: One Way Anova: $F(1,46) = 4.228$, $p < 0.05$



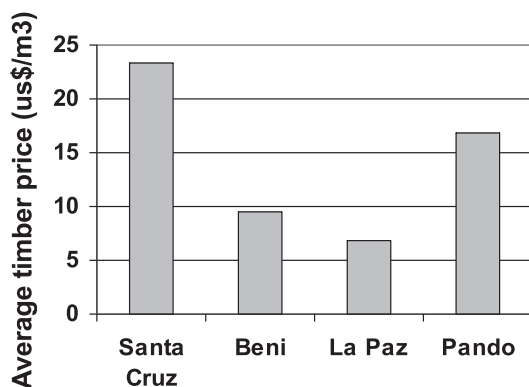


Figure 7.4 Average timber prices received by CFEs

Test results: One-Way Anova: $F(3,44) = 8.244$, $p < 0.01$

the many broad rivers are scarce, the ferries expensive and unreliable and water transport is slow and expensive. The availability of high value species and the increase in timber prices on the world market have attracted a great number of timber exporting enterprises. As no new forest concessions are available these enterprises are competing with each other to get access to the communities' forests. The prices the CFEs receive are relatively high because the communities sell high value timber but are low in comparison to the value of the same timber species in, for example, Santa Cruz. In Beni most timber logged is valuable but illegal logging is rampant and the prices on the legal and illegal market are similar to each other. Large enterprises used to have forest concessions in this area but were removed from the area when it was designated as an indigenous territory. This gave room for all kinds of informal initiatives and the CFEs established in the region cannot compete with these activities. Large enterprises are again starting to invest in the area in partnership with the indigenous communities. High investments are required as the forest is located in a highly inaccessible floodplain area.

Besides these market characteristics the availability of species also differs between regions and the CFEs in the different regions sell timber at different stages of processing. As a result price differences are due to multiple factors that are difficult to isolate. The regression analysis will control for these factors when assessing the influence of the negotiation capacity of the CFEs on the timber prices they receive.

7.4 Continuity

Continuity of logging activities over time is an important indicator for CFE performance as it reflects the capacity of a CFE to maintain its operations over time. All the other indicators are static and might give a distorted image at a given point in time. One CFE, for example, harvested and sold almost all the available timber for a relatively high price in one year but did not manage to continue logging operations after that. Continuity is an indicator of persistence and resilience and reflects the capacity of CFEs to deal with problems, find solutions and keep

going. Every year CFEs have to: (1) comply with government regulations to prevent sanctions and the revocation of their logging rights, (2) satisfy the community members to gain their support to continue operations, (3) obtain capital to start logging operations, (4) obtain the equipment to extract timber and (5) find timber buyers. The different aspects of continuity that could be used to serve as an indicator for CFE performance is discussed below.

One possible indicator for continuity could be the age of a CFE, which could be defined as the number of years that passed since: (1) its forest management plan was approved or (2) since a first logging plan was approved. As mentioned before, many CFEs elaborate a logging plan first and then use the revenue from this to develop their forest management plan. However, the age of a CFE does not say much about the continuity of its activities. A CFE that has existed for eight years might have logged only for three of those years.

Another possible indicator is the number of logging plans a CFE has elaborated since being established. According to the regulations, CFEs have to respect a minimum cutting cycle of 20 years. The forest management area is therefore divided in 20 annual logging areas and the CFEs are allowed to log the timber from one logging area each year. To plan logging activities the CFEs have to develop an annual logging plan, which has to be approved by the Forest Service. Theoretically the CFEs develop the plan and log the timber from one logging area per year. However, in practice the average age of the CFEs is 4.3 years but the number of years with an logging plan is only 2.7, significantly less than their age ($t(49) = -8, p < 0.01$). Thus not all CFEs develop a logging plan every year.

This does not necessarily mean that logging operations are discontinued. It is common for a CFE to take more than one year to log the timber available in a single logging area. Legally the CFEs can enter the same logging area for two consecutive years, after which the forest has to be left to regenerate. Moreover, the number of years the CFEs have been logging, on average three years, is significantly less than the number of years that they have existed ($t(49) = -6.571, p < 0.01$) which means that the CFEs do not log every year. There are large variations in these figures between CFEs. Two of them have logged only once since their establishment. Both of them encountered serious problems with the Forest Service over legal matters and one received a 5000 US\$ fine for falsifying the signature of a forest engineer. On average CFEs have logged timber in more years than they have developed an annual logging plan. The best indicator for the assessment of CFE continuity therefore might be the number of years in which a CFE has been logging, rather than the number of approved logging years or the number of years they have existed.

Some additional background variables should be considered before analyzing the effect of transaction costs on the continuity of CFEs. First, not all departments saw CFEs established at the same time. Figure 7.5 shows that the CFEs in Pando are significantly younger than those

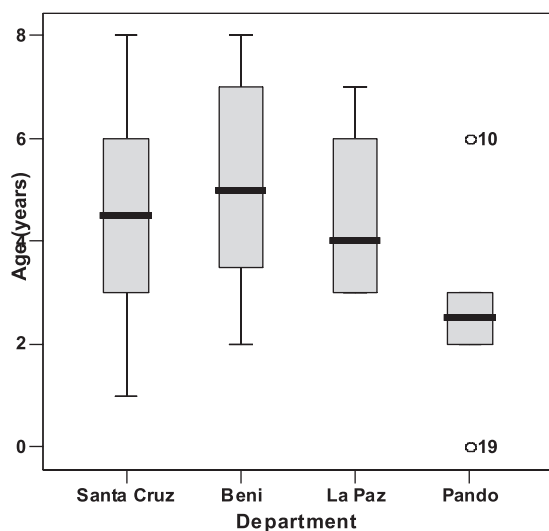


Figure 7.5 Average age of CFEs, by department

Test results: One Way Anova: $F(3,46) = 4.382, p < 0.01$

in the other three departments. Several factors might have influenced the later initiation of community forest management in Pando. These may include the delayed implementation of the process of land regularization, the (near) absence of NGOs that promote community forest management, the economic importance of the extraction of non-timber forest sources and the scarce infrastructure.

Another important aspect influencing the continuity of the CFEs is the possession of an approved forest management plan. CFEs that start logging with a logging plan might have the intention to develop a management plan but this does not always happen. The first time that CFEs sell timber they are frequently cheated by the timber buyers or incur such high operational costs that they do not make enough profit to pay for the management plan. In one example a community failed to make any profit from its logging plan and so decided to log timber from their agricultural plots to pay to develop their forest management plan. The development of the plan can be delayed by other factors too: conflicts over land rights, funding availability, the quality of the plan (some plans take years to be approved) or a loss of motivation among community members. CFEs with a logging plan can, in theory, only engage in timber logging for one year. However, in practice, the average period of logging with a logging plan is 1.6 years, which shows that the Forest Service does not always apply its rules very strictly. One community had been logging without a management plan for four years and the managers of this particular CFE did not even know that their management plan had not been approved. The forest engineer they contracted to develop the plan did not do so but found an alternative way to get the required logging plans approved by the Forest Service.

7.5 Accomplishment

The last indicator for CFE performance is the degree of satisfaction of the managers with the results accomplished by the CFE. CFEs always state their official objectives in the forest management plans but, as these management plans are elaborated by NGOs or privately contacted forest engineers, these rarely reflect the objectives of the communities. The objectives considered in this analysis were those mentioned by the CFE managers themselves during the interviews. 58 per cent of the 50 interviewed managers had three main objectives, 32 per cent had two main objectives and ten per cent had one main objective. These objectives fell into eight broad categories, shown in figure 7.6. Every time an objective was mentioned it was registered and the scores normalized (without any attempt to weight or rank each objective).

Figure 7.6 shows the categories of CFE objectives and the frequency with which they were mentioned. More than 90 per cent of the managers mention that the CFE should contribute to the general well-being of the community through the improvement of healthcare, education, the provision of water and electricity etc. The next most frequent objective was to provide direct economic benefits to the CFE members and community members in general. The third most frequent objective was the provision of work in the communities, to reduce temporary migration. Other objectives included: engaging in forest management to consolidate land rights and occupy and use their territories, managing and protecting natural resources from appropriation by outsiders, improving accessibility (roads) for the community, improving agricultural lands and the forest, strengthening the CFE as a community organization and repaying loans.

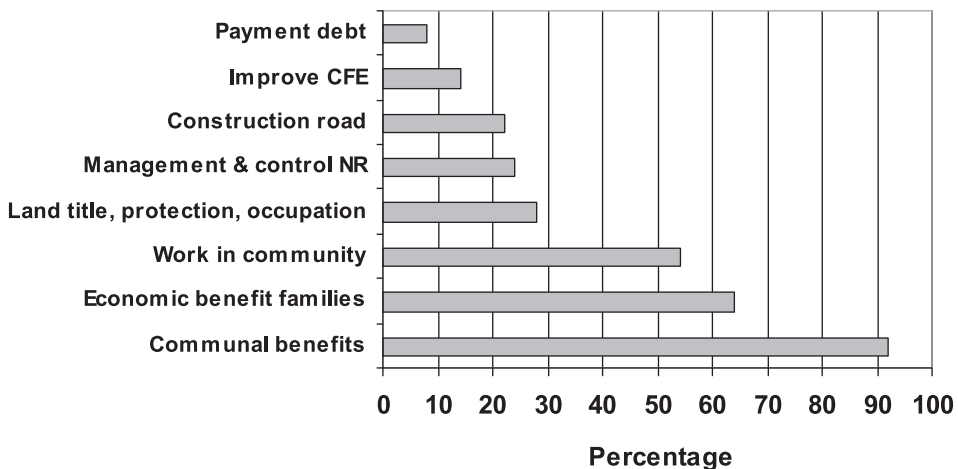


Figure 7.6 CFE objectives and their percentage of occurrence (n=50)

The objectives are thus rather diverse and most of them are not directly related to the maximization of profit which is considered to be the main objective of most private enterprises. In this sense, CFEs can be considered more as social enterprises that use locally available forest resources to provide their communities with a range of services that other institutions do not provide. While theoretically, many of these social services ought to be provided by local government the communities choose to arrange these services themselves, often to ensure a better livelihood for their children, rather than to wait for the government to provide them. To invest in social services, the CFEs first have to generate profit. CFEs may also experience internal disagreements on the priority assigned to the different objectives. Communities expect a certain number of people to be employed by the CFE, but CFE managers have to limit the working hours of the community members otherwise their salaries would swallow up all the profits and leave nothing to invest in the community or to distribute within the community.

CFEs scored an average of nine on a 0-15 scale of 'the achievement indicator.' This was based on the subjective judgments of the CFE managers on the extent to which the CFEs met their objectives. Notably there was a significant difference in these results between different groups of CFEs. Figure 7.7 shows that CFEs that work with NGOs consider that they have reached more of their objectives than market-assisted CFEs. Figure 7.8 shows that the CFEs that sell more processed products also feel more satisfied with their achievements. Finally figure 7.9 shows that CFEs reach more of their objectives as time passes.

One curious result from this analysis can be found in figure 7.10 which shows that the CFEs that sell more valuable timber, such as mahogany, cedar and oak, do not reach their objectives as well as CFEs selling less valuable timber. This can be explained by the fact that the communities that live in the regions where valuable tree species (still) exist outsource their management activities to private enterprises. The community members take little part in the management

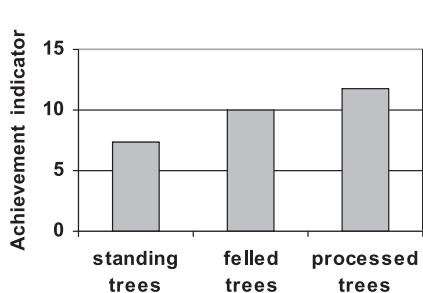


Figure 7.7 Perceived achievements by NGO- and market assisted CFEs (n=50)

Test results: One Way Anova: (F(2,47) = 8.955, p<0.01)

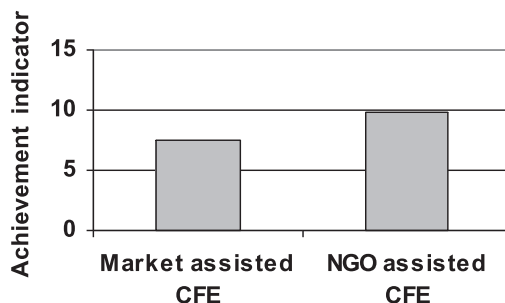
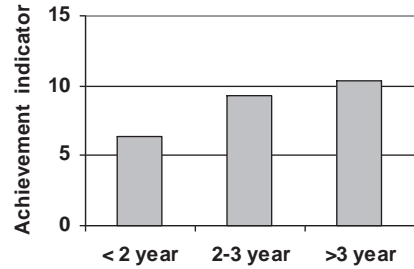


Figure 7.8 Perceived achievements of CFEs selling standing trees, felled trees and processed trees (n=50)

Test results: One Way Anova: (F (1,48) = 8.913, p<0.01)

Figure 7.9 Perceived achievements of CFEs over time (n=50)

Test results: One Way Anova: (F(2,47) = 11.683, p<0.01)



activities and the enterprises generally pay low prices and harvest only a limited part of the available timber. All these factors frustrate the outsourcing CFEs in meeting their objectives.

Figure 7.11 shows that there are also spatial differences, with the managers of CFEs in the departments of Santa Cruz and La Paz considering that they have achieved more of their objectives than their counterparts in the departments of Beni and Pando. These figures suggest that a large array factors influence the managers' perceptions of the CFEs' achievements and that success cannot readily be attributed to a single factor.

7.6 The effect of transaction costs on CFE performance

Having established and quantified the indicators for CFE performance, the effect of transaction costs on these indicators can now be assessed. As mentioned before, transaction cost theory predicts that businesses are likely to search for contractual arrangements that impose the lowest transaction costs on them and improve their economic performance. From the analysis of the transaction costs incurred by CFEs in interacting with the Forest Service, the market and NGOs, it has already been suggested that some transaction costs can be considered as investments, which improve the performance of the CFEs. The main objective of this section is to test the hypothesis that transaction costs affect CFE performance. The relationship between CFE performance and the transaction costs that they incur will be analyzed in the following

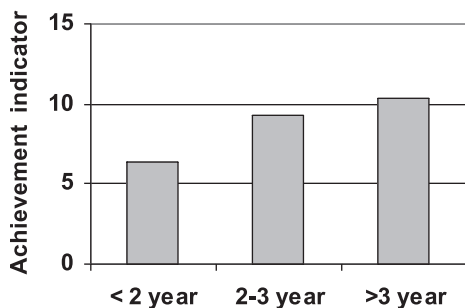


Figure 7.10 Perceived achievements of CFEs selling mainly soft, hard and valuable tree species (n=50)

Test results: One Way Anova: (F(2,47) = 11.683, p<0.01)

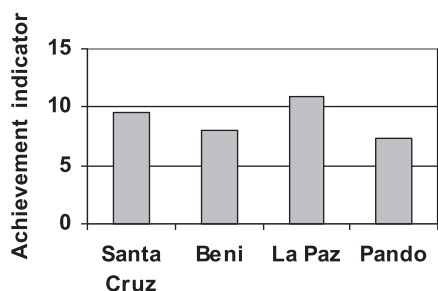


Figure 7.11 Perceived achievements of CFEs by department (n=50)

Test results: One Way Anova: ($F(3,46) = 3.301, p < 0.05$)

section. After confirming that a significant relation does exist, the section will go on to explore the nature of this relationship and to explain it.

A regression analysis was performed using two sets of transaction cost variables. The first set reflects the transaction costs that CFEs incur when transacting with their exchange partners, i.e. the Forest Service, timber buyers and NGOs. The second set of transaction costs reflect the transaction costs the CFEs incur in the different transactional activities, i.e. information gathering, negotiation, enforcement and compliance. The two sets of variables could not be included in the model simultaneously because the variables have to be constructed from the same data base and are not independent (see chapter 3). The analysis separately examines the costs incurred as investments by CFEs - in terms of time and resources (T&R) and the resources spend on dealing with the difficulties that they encounter. This is because the findings have indicated that these two types of transaction costs might well have a very different effect on the performance of CFEs. Using these two sets of transaction costs variables, two separate models (I and II) were defined. Model I analyzes the effect of the costs of transacting with different exchange partners on CFE performance. Model II analyzes the effects of the costs of the different transactional activities on CFE performance.

CFE performance is not expected to depend solely on the level of transaction costs. To enhance the explanatory power of the regression models and to understand the relative importance of transaction costs vis-à-vis other factors, some additional explanatory variables are included in the model. These variables are the non-transaction costs variables identified in the first sections of this chapter as influencing CFE performance. These variables, referred to as situational variables, are: (a) three dummy variables for the department where the CFE is situated (Santa Cruz, Beni, Pando), (b) one dummy variable for whether or not they have an approved forest management plan, (c) two dummy variables for the quality of the timber sold (soft wood, hard wood), (d) two dummy variables for the product sold by the CFEs (i.e. standing trees, felled trees) and one variable concerning the age of the CFEs.

These situational variables do not have a similar influence on all indicators of CFE performance. Location and possession of an approved forest management plan are included in all the

analyses. To analyze the continuity of the CFEs, the number of years that a CFE has existed has been included in the model. It is likely that a CFE that has existed for eight years will probably have more years logging experience than one that was founded two years ago. However, as this effect is unrelated to the transaction costs incurred, the age of the CFEs has been entered into the model to separate its effect from the transaction cost effect on CFE continuity. To analyze the effect of transaction costs on timber prices, the dummies for wood quality and the products sold have been included. Prices are expected to be higher for valuable timber, such as mahogany, cedar and oak than for other hard wood and soft wood and higher for processed trees than for felled and standing trees. No additional situational variables are included to analyse harvesting capacity and perceived accomplishments. Two variables that were expected to influence CFE performance (size of the logging area and the distance from an urban centre) were excluded from the analysis because they did not affect CFE performance. Figure 7.12 presents the variables used in the two models. Table 7.1 and 7.2 show the results of the regression analysis for models I and II respectively.

7.6.1 Transaction costs with exchange partners

The result of the regression analysis clearly answers the first and main question as all the indicators of CFE performance are significantly influenced by the transaction costs variables. However, the different categories of transaction costs affect the four indicators differently and not all indicators are affected by them to the same degree.

Harvesting capacity appears to be significantly influenced by the transaction costs that the CFEs incur with the market but not by the costs of interaction with the Forest Service. When leaving out the dummy that indicates whether or not a CFE has an approved forest management plan, the difficulty the CFEs experience when interacting with the Forest Service does affect harvesting capacity but the effect of the approved management plan is stronger and more significant³ than the effect of the transaction costs incurred with the Forest Service. This implies that the most important interaction with the Forest Service is gaining approval of the management plan.

Transaction costs with the market have both a positive and negative affect on the harvesting capacity of CFEs. The time and resources a CFE spends on market transactions influences its harvesting capacity in a positive way. The resources spent on dealing with encountered difficulties affect harvesting capacity in a negative way. Thus, CFEs that invest more time and resources on market transactions function better than CFEs that make less investments. This implies that the market-assisted CFEs that invest very little in market transactions do not perform as well as NGO-assisted CFEs. The location of CFEs does not affect their harvesting capacity. The regression model only explains 25 per cent of the variance in harvesting capacity between CFEs. To enhance its explanatory power, additional factors such as the availability of

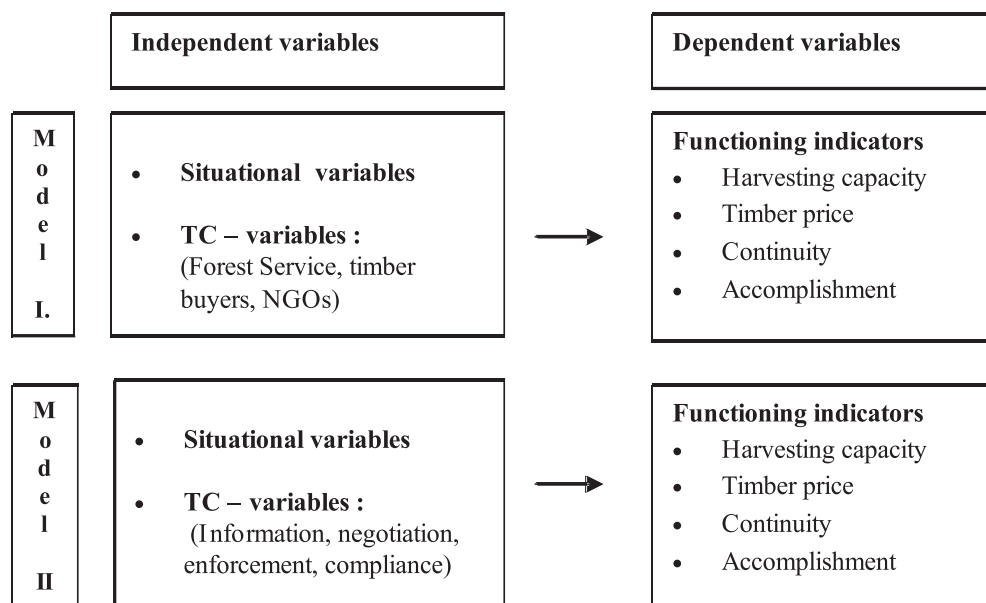


Figure 7.12 Variables used in regression models I and II

harvesting equipment and organizational aspects of the CFEs could also have been included, although information on these factors was not collected during the field research.

As expected, timber prices are influenced significantly by the location of the CFEs, the quality of timber and the type of products they sell. Moreover, there is a significant relation between timber prices and the transaction costs that the CFEs incur in dealing with difficulties encountered during market transactions. This is not a surprising result but it does demonstrate that transactional factors have some influence on market prices. The institutions that guide the market actors appear to influence the timber prices received by the CFEs in a negative way. It is remarkable that CFEs cannot improve the prices that they receive for timber by investing more time and effort in market transactions, as is the case for the harvesting capacity.

Timber prices are positively influenced by investing more time and resources on transactions with the Forest Service. This result shows the importance of the back-up that authorities provide and how this has altered the exchange relations that previously existed between the communities and the market. As timber sales are now on a legal basis, this drives timber buyers to treat the CFEs as (equal) exchange partners. This suggests that the Forest Service to some extent shelters the CFEs from abuse from the timber buyers. This may be because the

³ The effect of having an approved forest management plan partly overlaps with the effect of difficulties experienced with the Forest Service and this overlap was therefore removed from the model to avoid running the model with both inter-dependent variables included

Table 7.1 Results of regression analysis on the effect of transaction costs with exchange partners on the four indicators of CFE performance (model I)

All CFEs actors	Harvesting capacity	Timber prices	Continuity	Accomplishment
Standardized beta coefficient				
Forest Service T&R	–	0.382***	-0.513***	–
Forest Service difficulty	–	–	–	–
Market T&R	0.289**	–	0.336**	0.333**
Market difficulty	-0.339***	-0.231**	–	-0.511***
Age	ni	ni	0.580***	ni
FMP approved (D)	0.282**	–	0.215**	0.278**
Santa Cruz (D)	–	1.243***	-0.260*	0.008
Beni (D)	–	0.443***	-0.036	0.052
Pando (D)	–	0.942***	-0.224	-0.270
Standing trees (D)	ni	-0.530***	Ni	ni
Felled trees (D)	ni	-0.185	Ni	ni
Soft wood (D)	ni	-0.413***	Ni	ni
Hard wood (D)	ni	-0.038	Ni	ni
R2 adjusted	0.249***	0.636***	0.644***	0.465***
Method regression	Backward	Stepwise	Stepwise	Stepwise

Significance: * = sig < 0.1; ** = sig < 0.05; *** = sig < 0.01; the reference category for the dummy variable 'department' = La Paz, for the dummy variable 'product' = processed trees and for the dummy variable 'timber quality' = valuable wood; - indicates that the variable was included in the model but that no effect was found; n.i. = not included in the model. The analyses are based on 50 cases for all variables except for harvesting capacity where data was missing for two cases.

Forest Service's approving timber sale contracts encourages the buyers to offer better prices and refrain from opportunistic behaviour, or because the CFEs that interact more frequently with the Forest Service have more knowledge about their rights and possibilities. This aspect also underlines one of the main differences between NGO- and market-assisted CFEs. The former interact more frequently with the Forest Service and this leads them to receive better timber prices than the market-assisted CFEs. Model I explains 64 per cent of the variance in timber prices and can therefore be considered robust.

As expected, continuity is affected by the location and age of CFEs and by the transaction costs variables. CFEs that invest more time and resources in market transactions are more likely to log on a continuous basis. The level of resources spent on solving difficulties with the market does not affect the continuity of CFEs, while the time and resources spent on dealing with the Forest Service does affect the continuity of CFEs considerable and negatively. This might seem contradictory as the time and resources spent on dealing with the Forest Service has a positive effect on timber prices. The most likely explanation is that CFEs that invest a lot of time and resources in interacting with the Forest Service may do so to solve problems. The model explains 64 per cent of the variance in continuity.

The perceptions of CFE managers of the organizations' achievements are strongly affected by the level of interaction with the market. CFEs that invest more time and resources on market

transactions consider themselves to be more successful than those that spend less. This result is consistent with the previous findings which showed harvesting capacity and the continuity of logging operations to also be positively related to investment of time and resources in market relations. Equally, the feeling of success of CFE managers is negatively influenced by the amount of resources spent on dealing with difficulties encountered with the market. This is also consistent with earlier findings, which showed the harvesting capacity and the timber prices to be negatively influenced by the resources spent on the difficulties with the market. 47 per cent of the variance in perceived accomplishment can be explained by the model. Additional factors that might further explain the variance might well include aspects related to the internal organization of the CFEs, which were not been considered in this study.

The transaction costs variables affecting harvesting capacity and the timber prices are similar to those that affect CFEs' perceived achievements. This might indicate that harvesting capacity and continuity are also factors used by the CFE managers to assess the success of their enterprise. Moreover, the consistency of the results indicates that the opinion of CFE managers is a useful indicator for the performance of CFEs. Also Ketokivi and Schroeder (2004) came to the conclusion: that the measurements of perception were sufficiently reliable and valid to assess enterprise performance.

7.6.2 The cost of transactional activities

Table 7.2 shows the effect of the transaction costs spent on information gathering, negotiation, enforcement and compliance on the performance indicators. In line with expectations, the harvesting capacity of the CFEs appears mainly to be affected by the time and resources that CFEs invest in negotiations. Combining this result with the results from table 7.3 it appears that the time and resources invested in negotiations with the market, and the resources spent in dealing with difficulties during negotiations with the market, are the main factors that affect harvesting capacity. This result confirms Fafchamps' observation about the importance of negotiations in environments where contract enforcement is practically impossible (Fafchamps 2004). Table 7.2 also indicates that harvesting capacity is negatively affected when CFEs have to spend additional resources trying to comply with contractual agreements. The total variance in harvesting capacity explained by model II is 35 per cent, slightly more than model I although it still only explains a moderate amount of the variations in harvesting capacity.

The timber price that CFEs receive is significantly influenced by the time and resources spent on negotiation. As with table 7.1 this is especially the case for the time and resources spent on negotiating with the Forest Services, which strongly influence timber prices. Additional variations in timber price are explained by the included dummies. Model II explains 89 per cent of the total variance in timber prices, slightly less than model I.

Table 7.2 shows that CFE continuity is mainly influenced by the difficulty CFEs experience in complying with contractual arrangements. This most likely refers to the difficulties experienced by CFEs in complying with the regulations of the Forest Service. Whereas the 1996 Forest Law was designed to facilitate community forestry initiatives in Bolivia, it appears that the Forest Service significantly constrains the capacity of CFEs to continue logging operations year after year. Model II explains 63 per cent of the variance in continuity, which is similar to Model I.

The satisfaction of CFE managers in meeting their objectives is positively influenced by the time and resources spent on contract compliance and negatively affected by the resources spent on overcoming difficulties in complying with contracts. The results in table 7.1 showed that the perceived accomplishment of CFEs were mainly related to transactions with the market. CFEs thus consider themselves to be successful when they manage to comply with timber sale contracts. This strengthens the impression that CFE managers consider transactions with the market to be more important to their performance than transactions with the Forest Service. The Forest Service may define the legal setting but CFEs have to make it work on the market. The CFEs with approved forest management plans focus their attention on market transactions which are crucial to their successful performance. Model II explains 42 per cent of the variance in accomplishment, which is similar to model I.

The transaction costs incurred in information gathering and contract enforcement do not affect any of the indicators for CFE performance. This is quite remarkable because information availability is generally considered to play an important role in market transactions. The CFE managers, however, rarely spend resources on deliberately and purposefully gathering information, but tend to do so more through informal means. This may be explained by Stiglitz's (2000) observation that certain groups find it difficult to access certain types of information no matter how hard they try. CFE managers are, often, for example sent off empty-handed by forest officers and timber traders when asking for information. One CFE manager commented "you can go there and ask them (the enterprise), but they will always lie to you, so what is the use going there?" By contrast, the majority of the CFEs are assisted by external parties whether private enterprises, NGOs and forest professionals, who provide considerable information to the CFEs. However the type and quality of the information may more reflect the interest of the information providing party than that of the CFE.

CFE managers operate in a highly informal and network based market environment and thus gather information in an informal way. People listen to the radio, chat with other community members, drink a beer with leaders from other communities after regional football matches, participate in NGO and state organized meetings on community forest management etc. They and their contacts often know more than they might reveal. These arguments may at least

Table 7.2 Results of regression analysis on the effect of transaction costs of transactional activities on the four indicators of CFE performance (model II)

All CFEs Transactional activities	Harvesting capacity	Timber price	Continuity	Accomplishment
	Standardized beta coefficient			
T&R information gathering	–	–	–	–
Difficulty information gathering	–	–	–	–
T&R negotiation	0.363**	0.233**	–	–
Difficulty negotiation	-0.408***	–	–	–
T&R enforcement	–	–	–	–
Difficulty enforcement	–	–	–	–
T&R compliance	–	–	–	0.390***
Difficulty compliance	-0.297**	–	-0.298***	-0.322***
Age	Ni	Ni	0.550***	Ni
FMP approved (D)	0.250**	–	0.213**	0.326***
Santa Cruz (D)	–	1.069***	-0.066	-0.115
Beni (D)	–	0.264*	0.060	-0.164
Pando (D)	–	0.851***	-0.130	-0.284*
Standing trees (D)	Ni	-0.634***	ni	ni
Felled trees (D)	Ni	-0.222	ni	ni
Soft wood (D)	Ni	-0.430***	ni	ni
Hard wood (D)	Ni	-0.040	ni	ni
R2 adjusted	0.348***	0.588***	0.634***	0.418***
Method regression	Backwards	Stepwise	Stepwise	Stepwise

Significance: * = sig < 0.1; ** = sig < 0.05; *** = sig < 0.01; the reference category for the dummy variable 'department' = La Paz, for the dummy variable 'product' = processed trees and for the dummy variable 'timber quality' = valuable wood; - indicates that the variable was included in the model but that no effect was found; n.i. = not included in the model. The analyses are based on 50 cases for all variables except for harvesting capacity where there were data missing for two cases.

partly explain why, on the surface, the costs incurred in information gathering do not seem to affect the performance of CFEs.

Table 7.2 also reveals that contract enforcement does not affect CFE performance, which is highly surprising as contract breaching is a serious problem for CFEs. As predicted by Faichamps (2004), CFEs do not seek to enforce contract compliance because they do not have the means to do so. Rather, contract enforcement is done by means of continuous negotiation which fits more closely with the conflict-avoiding attitude of rural people in the Bolivian lowlands. This again clearly indicates the informal relational characteristics of the market environment in which CFEs operate.

7.6.3 Explaining the influence of transaction costs on CFE performance

The explanatory power of these two models only differs slightly. This is logical because the data used are the same but are grouped in different ways. A comparison of the results of the two models gives some additional insight about what influences CFE performance and how. The most remarkable result is that some categories of transaction costs correlate positively

with the performance indicators. This result is contrary to the theoretical assumptions that associate high transaction costs with reduced performance.

The performance of CFEs can be mainly attributed to their interactions with the timber market. This is partly because timber buyers are much more than just the buyers of timber. They also provide short (advance payments) and long term credit, assist in the development of management and logging plans and provide harvesting equipment and other services. Timber buyers are thus much more than just people who buy timber from the communities, in many cases they enable the communities to sell timber to them.

This implies that, although CFEs have been given the legal rights to harvest timber, their performance greatly depends on their ability to deal with the market. It has been shown in chapters 4 and 5 that trade relations between rural communities and timber traders were established decades ago. Under the new land and forest legislation, the resource endowments of the rural communities vis-à-vis timber traders have significantly changed. To benefit from these changes, CFEs need to invest time and resources in redefining their role and place on the timber market. They have to establish their reputation as timber providers, prove that they have the capacity to deliver and learn how to play the game.

The timber market relies almost completely upon a network of contacts to access information and professional and technical services. To access this information and these services CFEs need to connect with this network and play the game according to the established rules. One of these rules is that contracts are flexible which is largely a response to the difficult circumstances in which people have to operate (see also: Fafchamps 2004). This same argument is also used to justify opportunistic behaviour and less involved market players might not recognize when non-compliance is the result of genuine difficulties or opportunistic behaviour. CFEs that have invested the necessary time and resources to engage in the market will have a better idea of who to sell to and the conditions that are realistic and necessary to impose on timber buyers. For example, one CFE manager said that he had stopped including the dates of payment in the contracts but instead had agreed with the buyer that he would always ensure that the CFE had enough operational capital. The rest of the money would be paid when the timber buyers managed to sell the timber. The request for operational capital was considered legitimate by the timber buyer, otherwise he would have no timber to buy and the condition were accepted and honoured. Before this the existing contracts imposed strict conditions on payments which were never complied with and meant that the CFE often found itself without sufficient operational capital.

CFEs that do not comply with timber delivery schedules (within a reasonable time span) lose the trust of timber buyers. This aspect of contract compliance is also related to the success in negotiating. It was suggested before that the CFEs that manage to arrange that service providers deliver good quality equipment on time, are better able to comply with buyers'

demands. All CFEs depend on harvesting equipment from the timber buyers to extract timber from the forest. Harvesting equipment is scarce and once the dry season starts many farmers, communities and timber enterprises are competing for its use. CFEs need to negotiate the quality and the number of machines to be sent to the forest and when they will arrive in order to ensure that they can harvest their timber on time. More experienced CFEs use one of two strategies. First, they only sell timber to buyers that own the necessary harvesting equipment and do not depend on a third party. Second, they negotiate an early entry date so they can sell to an alternative buyer if the first buyer appears to have insufficient extraction capacity. CFEs adapt their strategies to deal with timber buyers. Most importantly they do not start felling trees until the timber buyer explicitly orders them to fell or they even wait for the buyers to actually bring in their skidders. Other CFEs simply do not deal with timber buyers that do not have good quality harvesting equipment. As one CFE manager said, “the poor should not do business with the poor as they cannot help each other”.

The effect of the Forest Service on CFE performance is less pronounced and is mostly felt in terms of the continuity of the CFEs. The time and resources invested in dealing with the Forest Service correlates negatively with the continuity of CFEs. This is probably because CFEs only invest additional resources in dealing with the Forest Service when problems arise. These problems may not necessarily be caused by the Forest Service, but may relate to overlapping land claims, non-payment by timber buyers or improper application of harvesting regulations.

The Forest Service has the power to decide whether CFEs get permission to log and can halt logging activities if there are irregularities. Individual forest officers play an important role as they may decide to apply the rules strictly and fine a CFE for mistakes or they may be flexible in applying the rules and assist a CFE in improving its performance. This difference in attitude can ‘make or break’ a CFE. Members of communities whose managers decide to abandon forest management practices can revert back to logging using small-scale logging authorizations. In this way forest officers can promote unsustainable logging practices if they are too strict in applying forest management regulations.

On the other hand, the Forest Service seems to have a ‘normalizing’ effect on trade relations between CFEs and timber traders. The influence of the Forest Service seems to reduce opportunistic behaviour by timber traders and lead them to pay higher prices to the CFEs that interact frequently with the Forest Service. Beside the effect of closeness of authority, CFEs that engage more intensively with the state are considered to have better information about their rights and procedures and are less easily misled by the timber buyers. The CFEs that engage more intensively with the Forest Service are mainly NGO-assisted. Thus one potentially important role of NGOs might be that of promoting more frequent contact between CFEs

and the Forest Service and thereby enable the CFEs to build a network of assisting agents. The CFEs that are financed by private enterprises do not relate much to the Forest Service and receive lower prices for their timber. In the regions where the most market-assisted CFEs are located, the Forest Service has been informally accused of colluding with the private enterprises protecting their interest (increased access to timber) rather than the interests of rural communities (receiving a decent price for the timber on their land). Some forest officers assigned to these regions have confirmed that this does occur.

7.6.4 Transaction costs and the performance of NGO assisted CFEs

The regression analysis presented in Table 7.1 and 7.2 cover all 50 of the CFEs interviewed in this study. As there were considerable differences in the characteristics of the NGO- and market-assisted CFEs it is worthwhile analysing these two groups separately. The results are of particular relevance in assessing the effect of NGO assistance on community forest management activities. Additionally, it is also interesting to see how transaction costs affect the performance of those CFEs that run their enterprises themselves rather than, as the market-assisted CFEs do, outsource all operational activities.

This section therefore runs the same regression analysis separately for the group of NGO-assisted CFEs. The variance in the indicators for CFE performance among this group may be explained by other, or additional, transaction costs variables. These NGOs have additional transaction costs due to their interactions with NGOs and these costs have been added to the list of variables. As the sample size (31) is relatively small for the number of independent variables included in the model, the results should be taken as indicative rather than definitive. The number of market-assisted CFEs cases is even smaller (19), too small a sample for the regression analysis to be ran. Only the results of model I are presented, as those of model II did not show any significant relationship between the transactional activities and CFE performance. These results are presented in table 7.3.

Table 7.3 shows that within the group of NGO-assisted CFEs, harvesting capacity is positively influenced by the possession of a forest management plan and negatively influenced by the costs of dealing with difficulties encountered with all three exchange partners; the market, the state and NGOs. Whereas the harvesting capacity of the whole group of CFEs was positively affected by the time and resources spent on market transactions this effect is not significant for the NGO-assisted CFEs. This might imply that for NGO-assisted group, the internal variation in investments is too small to account for the differences in harvesting capacity and shows that these CFEs experience different levels of difficult in dealing with their exchange partners which has an effect on their harvesting capacity.

The difficulties encountered with exchange partners have a much larger effect on the harvesting capacity of NGO-assisted CFEs than on CFEs in general. This is mainly because the general CFE group includes the market-assisted CFEs whose harvesting capacity largely reflects the

harvesting capacity of the private companies that buy their timber. Any difficulties that the market-assisted CFEs experience are not likely to affect the harvesting capacity of these private enterprises. On the other hand, the NGO-assisted CFEs implement many forest management activities themselves and their harvesting capacity depends directly on the transaction costs they incur with all these actors. Any problems that occur with exchange partners are thus likely to be reflected in a lower harvesting capacity.

The difficulties with the Forest Service that reduce harvesting capacity are due to the timely approval of logging permits and release of transportation permits. Without these permits no timber extraction can take place. Due to the limited period suitable for timber logging per year, such delays may impede logging activities for the entire year, significantly reducing a CFEs harvesting capacity. The difficulties with the market that reduce harvesting capacity are mainly related to the timely availability of good quality machinery to construct roads and extract timber from the forest. Lack of such equipment may also significantly reduce the capacity of a CFE to extract its timber quota in a given year. Lastly, the difficulties with NGOs can affect harvesting capacity if the NGOs do not deliver the services they promise. NGOs contract forest engineers to develop logging plans for CFEs but work pressure might mean that these plans are not submitted on time to the Forest Service, again shortening the time available for logging. Moreover, NGOs may impose certain conditions on timber buyers that the timber buyers find hard to accept, possibly leaving the NGO-assisted CFEs without buyers.

Seventy six per cent of the variation in timber prices received by NGO-assisted CFEs is explained by situational variables, such as the type of timber sold (soft, hard, high quality timber) and the location of the CFEs. The timber prices that the NGO-assisted CFEs receive are not affected by the transaction cost variables included in the model. This implies that all the NGO-assisted CFEs receive similar timber prices and that these prices probably reflect the average timber prices in the regions. While the CFEs may consider these prices to be relatively low compared to their operational costs, the fact that they receive 'average' timber prices is an indication that they have established themselves as recognized timber providers within the market.

The continuity of NGO-assisted CFEs is influenced by the same transaction costs variables as the continuity of CFEs in general. This also indicates that both NGO- and market-assisted CFEs may encounter the same kind of problems with the Forest Service that obstructs their continuity. Both CFEs can also encounter such problems with the market, particularly if they have no capital to continue their logging activities, or if the CFE considers implementation of the management plan too complicated to continue. Several CFEs have suspended their forest management activities but will consider resuming at a later, unspecified time, when more capital becomes available.

Table 7.3 of regression analysis for the effect of transaction costs with exchange partners on the four indicators of CFE performance for NGO-assisted CFEs (model I)

Assisted CFEs actors	Harvesting capacity	Negotiation capacity (timber prices)	Continuity	Accomplishment
	Standardized beta coefficient			
Forest Service T&R	–	–	-0.505***	–
Forest Service difficulty	-0.278*	–	–	–
Market T&R	–	–	0.347***	–
Market difficulty	-0.275*	–	–	-0.318**
NGO T&R	–	–	–	–
NGO difficulty	-0.425***	–	–	0.253**
Existence	ni	Ni	0.635***	ni
FMP approved (D)	0.341**	–	–	0.396***
Santa Cruz (D)	–	0.993***	-0.286**	-0.067
Beni (D)	–	0.097	-0.130	-0.118
Pando (D)	–	0.369	-0.164	-0.495***
Standing trees (D)	ni	-0.157	ni	ni
Felled trees (D)	ni	-0.169	ni	ni
Soft wood (D)	ni	-0.845***	ni	ni
Hard wood (D)	ni	0.399**	ni	ni
R2 adjusted	0.418***	0.758***	0.786***	0.638***
Method regression	Backward	Stepwise	Stepwise	Stepwise

Significance: * = sig < 0.1; ** = sig < 0.05; *** = sig < 0.01; the reference category for the dummy variable 'department' = La Paz, for the dummy variable 'product' = processed trees and for the dummy variable 'timber quality' = valuable wood; - indicates that the variable was included in the model but that no effect was found; n.i. = not included in the model. The analyses are based on 50 cases for all variables except for harvesting capacity where there were data missing for two cases.

The extent to which the managers of NGO-assisted CFEs perceive that they meet their goals is negatively influenced by the difficulty experienced in interacting with the market and positively influenced by the difficulty experienced in interacting with NGOs. While this last aspect appears contradictory, the CFEs that experience difficulties with NGOs are inclined to discontinue working with the NGO and proceed independently. This enhances their freedom to take decisions according to their own objectives rather than the objectives introduced by the NGOs. Reasons for CFEs discontinuing their relationship with a NGO have included their unwillingness to alter their leadership style, to involve women in the organization, or differences of opinion about how the benefits should be distributed. While such reasons have led several CFEs to discontinue their formal relationship with a NGO such a separation is rarely complete or definitive. The CFEs often still approach the NGOs if they encounter certain problems and appreciate the continued invitations to attend workshops and courses organized by NGOs. Assistance, however, takes place on the CFE's initiative or over issues requested by the CFE. This enhances the CFEs' perceptions of their accomplishment, as they are able to run their CFE independently.

The performance indicators of NGO-assisted CFEs are also mainly determined by the transactions with the market. However it is not so easy to improve these performance

indicators by investing additional resources in market transaction, as performance is mostly influenced by the difficulties encountered with the market. Interactions with NGOs also have a significant impact on the performance of these CFEs: difficulties in interacting with NGOs can significantly reduce the harvesting capacity of CFEs. The better performing CFEs feel they achieve their goals better when they decide to continue without NGO assistance. These CFEs are assuming ownership, as proposed by the NGOs, although they might not always do so in the way that the NGO envisioned.

7.7 Conclusions

The objective of this chapter was to analyze if and how the transaction costs affect the functioning of the CFEs. Thereto four indicators for CFE functioning have been defined and the relation between CFE functioning and the height of the transaction costs incurred by the CFEs analyzed.

Transaction costs influence the performance of CFEs. All of the performance indicators: harvesting capacity, continuity, timber prices and perceived accomplishment, are significantly influenced by some of the variables included in the model in which the influence of the different types of transaction on CFE performance was analyzed. Transaction costs can not only have a negative effect on CFE performance but can also improve it; which is a form of investment in transactions to increase benefits. The most important transactional activities in this respect are negotiating and compliance with the contractual arrangements. Investment of resources on searching for information and contract enforcement does not affect CFE performance.

CFE performance depends largely on the way in which CFEs interact with the market. CFEs that invest additional resources in dealing with the market perform better than those that consider their relation with the timber buyers problematic or too costly to deal with. The state has a strong influence the continuity of CFEs, initially through approval of the forest management plan, and while compliance with state regulations might not affect harvesting capacity it does affect the approval of logging permits. CFEs that have to spend significant resources dealing with the Forest Service are likely to do so in order to solve a problem which affects the continuity of their logging operations. Those that interact more frequently with the Forest Service are better informed about their rights and the market and receive better prices for their timber. This suggests that CFEs can relate to the Forest Service in two distinct ways, the first seeing it as a controller, the second by enrolling it as part of the CFE's network. NGO assistance generally improves CFEs' functioning but may also reduce their harvesting capacity by fostering disproportionate dependency. Difficulties in the relation between CFEs and NGOs may cause the CFEs to become more independent of the NGOs, which adds to their perception of their achievements.

Overall conclusion

8.1 Introduction

The overall objective of this research was to determine whether and how the institutional environment influences the establishment and performance of Bolivian Community Forest Enterprises (CFEs). This study defines CFEs as organizations that: (1) manage collectively owned forests in name of all community members and (2) follow forest management regulations established by the 1996 Forest Law. A theoretical framework was developed and the concepts from this framework integrated used as basis for addressing the research questions. The theoretical reasoning behind this research is that the institutional environment can both facilitate and obstruct the performance of CFEs. Theoretically CFEs would be expected to engage in contractual arrangements that involve the lowest possible transaction costs, so as to improve the economic benefits they receive from selling timber. Low transaction costs are associated with an enabling institutional environment and high transaction costs with an obstructive institutional environment. Transaction costs can be used as an indicator of the degree to which the institutional environment influences the performance of CFEs and were therefore selected as the focus of this research.

Four research questions have been formulated:

1. How have changes in land and forest legislation influenced forest use by local people in Bolivia and how have these changes lead to the emergence of CFEs?
2. What contractual arrangements do the Bolivian CFEs enter into and for what reasons?
3. How can the contractual arrangements between the CFEs and their exchange partners be characterized in terms of transaction costs? Are they cost effective, as predicted by transaction costs theory? And how do these costs relate to the institutional environment?
4. How do transaction costs influence the performance of CFEs?

These research questions build from the different concepts used in the theoretical framework that respectively concern the institutional environment, contractual arrangements, transaction costs and performance of CFEs. Chapters 4-7 address each of these research questions in turn. Chapter 4 looks at the historical relation between land and forest regulation, the use of forest resources by farmers and indigenous communities and the emergence of the CFEs. The influence of institutional environment on the establishment of CFEs and the contractual arrangements they make with other actors - the Forest Service, market actors and NGOs is addressed in chapter 5. The transaction costs incurred by CFEs under different contractual arrangements is analysed in chapter 6 and chapter 7 investigates the effect of transaction costs on the performance of CFEs.

The following section of this chapter summarises the answers to the four research questions and this is followed by a reflection on the theoretical framework. Thereafter the research methods used will be briefly discussed. Finally the chapter concludes with a set of recommendations for policy makers and NGOs and the identification of future research topics.

8.2 The influence of institutions on the establishment and performance of Bolivian CFEs

The first research question was: “How have changes in land and forest legislation influenced forest use by local people in Bolivia and how have such changes contributed to the emergence of CFEs in Bolivia?” This research question is addressed in chapter 4, the main objective of which was to assess the changes in forest use that have occurred at the local level due to changes in land and forest legislation. The second objective was to clarify the position of CFEs vis-à-vis other types of forest use by local communities and identify the distinguishing characteristics of CFEs.

The data presented in chapter four shows that the Agrarian Land Reform Law (INRA) and the Forest Law, both enacted in 1996, which assigned land and exclusive forest user rights to farmers and indigenous people, have led to considerable changes in the use of forest resources. The main change is that the number of actors involved in timber extraction and processing has increased considerably. This increase can be directly attributed to the transfer of decision making about forest use on private lands from the forest state agency to private and collective land owners. This meant that timber extraction could be directly negotiated with the land owners. Although the Forest Service still has to grant logging authorizations, the basic right to log from private lands has been established by the law. Equally, the land reforms increased the forest area under the authority of landowners at the expense of the forest area under the control of the state. Thus the 1996 Forest Law increases the access that small- and medium-scale forest enterprises have to forest resources compared to the previous (1974) Forest Law.

Forest enterprises, however, were not eager to accept that farmers and community members were now the owners of the previously freely available forest resources. In the more accessible forested regions, timber traders started to compete over forest resources and some realized that direct negotiations with the newly established land owners offered the easiest way to access timber. These ‘new style’ timber buyers started to offer services to the landowners to facilitate timber extraction. These services include the elaboration of the required legal documents and extracting the timber from the forest. These timber buyers offer the cheapest, most accessible and least controlled type of logging authorization for the landowners, usually small-scale logging authorizations. Only under specific conditions, when high investments are both needed and justifiable, or when the competition between enterprises is high, have timber enterprises financed large-scale forest management plans to access timber on community lands.

The 1996 Forest Law defines forest management regulations for small-scale timber extraction but these are hardly ever applied as the Forest Service lacks the capacity to monitor these

activities. Besides, the timber buyers are powerful enough to nullify possible allegations of non-compliance with the law. Timber extraction often still operates on a 'cut and run' principle that existed before. This situation is promoted by the timber buyers and accepted by the farmers and community members selling timber who welcome an additional source of income even though the prices they receive are relatively low. This implies that the Forest Service has been unable to promote sustainable forest management, the first objective of the Forest Law, through using small-scale logging authorizations. However, the second objective, the democratization of access to the benefits of forest resources, has been realized at least partially as both the number of people selling timber and the number of people involved in timber trading and processing has increased considerably.

The second objective of chapter four was to understand how the changes in land and forest legislation lead to the establishment of CFEs and the position of the CFEs vis-à-vis other types of forest use by local communities. CFEs differ from other forest users because they base their logging operations on *de jure* sustainable forest management plans instead of small-scale logging operations and manage the forest collectively instead of individually. Only a small, but steadily increasing, percentage of rural communities in the lowlands of Bolivia have established a CFE. However, the forest area managed by these CFEs is considerable: between one and two million hectares. Considering that most farmers and communities are encouraged by timber buyers to apply small-scale logging authorizations, why have some communities established CFEs and followed the route of elaborating large scale, long-term forest management plans?

This question was addressed in chapter five, the overall objective of which was to demonstrate the influence of the institutional environment on the establishment and performance of CFEs. This chapter identifies and analyses different elements of the institutional environment and how these influence CFEs.

The most important conclusion to emerge from this analysis is that, at least initially, it are external parties, rather than local people that decide on the type of logging authorizations used. Local people accept the application of the type of logging authorization (small-scale or large-scale) proposed to them by external parties. Small-scale logging authorizations are mostly only offered by timber buyers, while large-scale management plans are offered by timber buyers and NGOs, who have different reasons for investing in such plans. NGOs are primarily concerned with the defence of the territorial rights of the indigenous population, the protection and management of the forest and improving local livelihoods. Forest enterprises by contrast want to ensure their access to timber and enhance their profit. Thus timber buyers and NGOs have different selection criteria. NGOs usually assist not too isolated indigenous communities with large forest areas, with whom they often have existing relations. Private enterprises tend more to evaluate the potential of the forest and the chance that a community will/can breach the

contract. A minority of CFEs have deliberately chosen to develop a large-scale management plan without financial aid from an NGO or a private enterprise, particularly in regions where other successful CFEs exist. Depending on the source of financing for the forest management plan three groups of CFEs exist: (1) CFEs that received financing from private enterprises, (2) CFEs that received financing from NGOs and (3) a minority of self-financed CFEs.

The precise question addressed in this chapter was: “What cennaenual arrangements have been installed by Bolivian CFEs and for what reasons?” The chapter shows that the source of financing for the development of the management plan very strongly influences the type of contractual relations that CFEs establish with timber buyers, the Forest Service and NGOs.

Market-assisted CFEs that receive finance from timber buyers to develop a forest management plan and are considered to be indebted to the timber buyers who request the communities to sign long-term contract so as to safeguard their investments. These contracts are difficult to renegotiate, the prices are relatively low, the CFE members do not partake in forest management activities, hardly interact with the Forest Service and have little knowledge about their rights and obligations. Market-assisted CFEs may develop into ‘low profile’ or ‘locked-in’ CFEs. ‘Low profile’ CFEs are reasonably satisfied with the timber sale contract because the forest enterprises comply with the contacts reasonably well and provide basic needs to the communities. ‘Locked-in’ CFEs would rather dissolve the timber sale contract because the enterprise does not comply with the contract, but have difficulties doing so.

NGO-assisted CFEs, on the other hand, receive finance from an NGO to develop their management plan. Like the self-financed CFEs they are free to sell the timber to whomever they want, for as long as they want, as they are not indebted to a forest enterprise. These CFEs mainly sign short-term contracts that enable them to experiment with timber buyers and contractual conditions to find the arrangement that best match their objectives and capacities. Timber prices, the number of species, the duration of timber extraction and payment schemes are all aspects of the contracts that are subject to negotiation. All NGO-assisted and self-financed CFEs are responsible for developing their logging plans and reports, actively engaged in timber logging and take care of most bureaucratic processes with the Forest Service. In most cases the extraction of timber from the forest is usually carried out by the timber buyers. Some NGO-assisted CFEs have developed into ‘high profile’ CFEs whose members mostly live from timber sales while others have become ‘medium profile’ CFEs for whose members’ timber sales constitute a significant additional productive activity.

In summary, the source of financing of the management plans largely determines the type of contractual arrangements that exist between the CFEs and their exchange partners. Finance plays such a key role because the requirements for elaborating the forest management plan are costly to comply with.

Chapter six addresses the third research questions: “How can the contractual arrangements between the CFEs and their exchange partners be characterized in terms of transaction costs?” Are they cost-effective, as predicted by transaction costs theory? And, how do these costs relate to the institutional environment? Chapter six shows that the CFEs that receive financing from private enterprises and sign long-term timber sale contracts have low transaction costs whereas the CFEs that received financing from NGOs or that finance their own management plan and sign short-term timber sale contracts experience relatively high transaction costs. This result was unexpected because it is generally thought that NGOs lower communities’ transaction costs with external parties, rather than increase them. This result can however be easily explained, as the market-assisted CFEs outsource all management activities and have few interactions other than with the timber buyers. NGO-assisted and self-financed CFEs that implement all management activities independently deal with the timber buyers and Forest Service on a more regular basis and therefore experience higher transaction costs.

Transaction costs can have different origins, they can arise from the time and resources spent on activities or the resources spent on dealing with problems that the CFEs face during interaction with their exchange partners. NGO-assisted CFEs invest more time and resources in managing their enterprises and therefore have higher transaction costs than the market-assisted CFEs which outsource all management activities. As the NGO-assisted CFEs become more experienced they face fewer problems with the Forest Service and timber buyers and their transaction costs decline over time. These CFEs have invested in their enterprises and learned to deal with market and state actors. However, some CFEs experience increasing problems with the NGOs that assisted them and may decide to discontinue cooperating with them. Market-assisted CFEs, by contrast, experience ever more problems with timber buyers and the Forest Service and see their transaction costs increase over time.

The market-assisted CFEs may also learn from their experiences but only have limited possibilities to adapt the long-term timber sale contract they have signed. Problems with the Forest Service arise when the private enterprises do not comply with forest management regulations as it are the communities that are legally responsible for the logging that occurs in their forest.

Transaction costs can be associated with a range of different transactional activities: negotiation, gathering information, enforcement and compliance. Costs incurred in negotiation are significantly higher than for the other activities. This is in line with theoretical observations on how markets function in situations where formal contract compliance mechanisms are poorly developed or non-existent. Under these conditions enforcement occurs through continual re-negotiation and considerable resources have to be invested in establishing and maintaining the network of exchange relations. CFEs incur significantly lower enforcement costs with the Forest Service than the market. CFEs may request the Forest Service to comply with its

obligations but the type of relation does not allow them to enforce this. Market-assisted CFEs face lower compliance costs than NGO-assisted ones because they have fewer contractual commitments.

Chapter seven analyzes the effect of transaction costs on the performance of CFEs in order to answer the final research question: “Do transaction costs influence the performance of CFEs?” Performance is considered to be a multidimensional concept and four different indicators are used in the analysis: harvesting capacity, continuity of logging operations, timber prices (as a proxy for negotiation capacity) and self assessment of accomplishments. Regression analysis shows that transaction costs do significantly affect the performance of CFEs, as predicted by transaction costs theory. However, not all types of transaction costs affect all performance indicators in the same way, or with the same magnitude.

On average CFEs only log around 42 per cent of the volume of timber that they are legally allowed to log under their forest management plan. CFEs that invest more on market transactions, mainly the NGO-assisted and self-financed CFEs, sell more timber, log continuously year after year, receive higher prices for the timber and consider themselves to be more successful.

In general, CFE performance in terms of harvesting capacity, continuity, prices and perceived accomplishment, depends strongly on the time and resources the CFEs invest in market transactions. This implies that when CFEs decide to invest in themselves they are able to make it work. On the other hand, the CFEs that are locked into long-term contracts due to the finance received from private enterprises, have only limited possibilities to improve their performance through investing in market transactions. The Forest Service has a strong influence on the continuity of CFEs, not only because it must initially approve the forest management plan but also because it oversees compliance with forest management regulations through providing logging and transportation permits. CFEs that have to spend significant resources on interacting with the Forest Service to solve problem see the continuity of their logging operations interrupted. On the other hand, CFEs that interact more frequently with the Forest Service are better informed about their rights and the market and receive better prices for their timber. This suggests that CFEs can relate to the Forest Service in two distinct ways, the first seeing it as a controller, the second by enrolling it as part of the CFE’s network. NGO assistance generally improves CFE performance as the financial and technical assistance that the NGOs provide allow the CFEs to assume forest management activities, engage in short-term contracts with timber buyers and invest in the development of their enterprises. Over time NGO assistance may, however, reduce harvesting capacity as a result of the dependency relation. Disagreements between CFEs and NGOs may also stimulate the CFEs to continue without NGO assistance, which is another factor that enhances the CFEs’ managers perceptions of accomplishment.

Two major conclusions can be drawn from this. First, the institutional environment is, if not the main determinant, then at least very influential in the establishment and performance of CFEs. Within the limits generated by the institutional environment, CFEs have very limited scope to establish themselves as financial resources are required from external parties. Once established the CFEs have more 'room for manoeuvre' in influencing their performance, at least whenever they do not start from a position of indebtedness to a private enterprise. Second, the institutional environment in Bolivia is not unambiguously enabling or obstructing for CFEs. Rather, the combination of institutional factors together with resource endowments and location are the main determinants of the interplay and the outcomes of interaction between rural communities, state institutions, market actors and NGOs

8.3 Reassessing the conceptual framework

8.3.1. Relating the results back to the conceptual framework

The overall question that guided this research was whether and how the institutional environment influences the establishment and performance of CFEs in Bolivia. This research has demonstrated that the institutional environment not only influences, but almost determines the constitution of Bolivian CFEs. The constitution of CFEs has been enabled by changes in land and forest legislation, is obstructed by costly forest management regulations and enabled by financial and technical aid from NGOs and investments from private forest enterprises. CFEs do not originate from initiatives taken by farmers and indigenous communities themselves but are fostered by external actors and institutions. The following section reviews the concepts that made up the conceptual framework (set out in chapter 2 – see figure 8.1) and how the results of the research supports or negates these theoretical underpinnings.

Interactions between rural communities, the Forest Service, timber buyers and NGOs leads to the establishment of three broad contractual arrangements between these parties (arrows 1 and 3 in the framework). First, there are short-term timber sale contracts between timber buyers and individual farmers or community members, based on small-scale logging authorizations. These arrangements are most common in the more accessible areas where timber buyers do not have to make large investments to extract the timber from the forest. NGOs do not generally take part in this type of arrangement. Second, there are long-term timber sale contracts between timber buyers and farmers or indigenous communities based on large-scale forest management plans. These arrangements are common in areas where timber buyers need to make considerable investments to develop the management plan or extract the timber. The CFEs engaged in this type of arrangement have been referred to as market-assisted CFEs. Third, there are short-term timber sale contracts between farmers and indigenous communities based on large-scale forest management plans. Most CFEs under this arrangement are financed by NGOs, although some financed their own management plan. NGOs mostly work with indigenous communities with access to large (on average 10,000

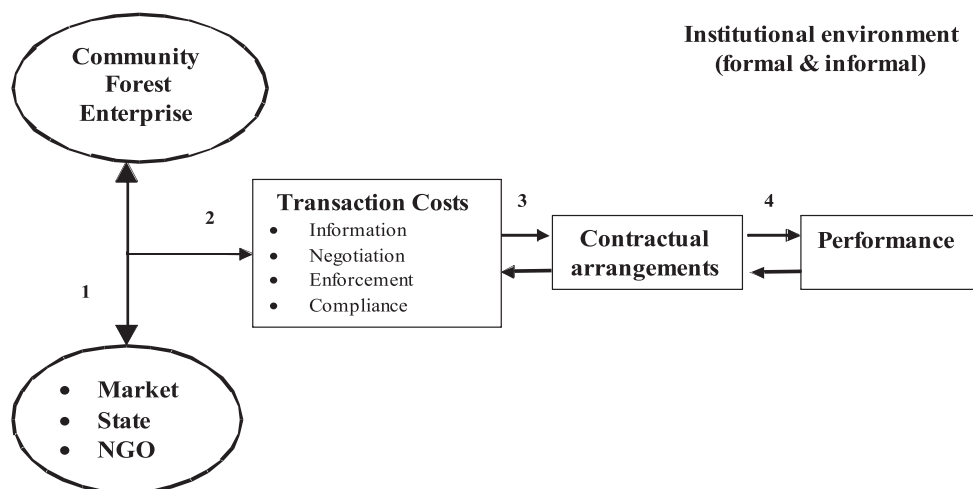


Figure 8.1 Transaction costs, contractual arrangements and CFE performance as a result of interactions between CFEs, the market, state and NGOs

hectares) patches of forest. The CFEs that engage in this type of contractual arrangement are referred to as NGO-assisted CFEs. Only the second and third contractual arrangements were included in this study as the first arrangement concerns individual forest use and not community based forest use.

This analysis might give the impression that communities have little or no choice in the type of arrangements they enter into, but this is only partly true. It is true that communities have little say about the decisions that private enterprises and NGOs make about where to invest. If the available forest resources are not of sufficient quality, then private enterprises are unlikely to want to invest in either small- or large-scale management plans. If communities do not have any existing relationship with an NGO, they are unlikely to receive financing from an NGO. This might leave some communities with no options for selling timber, unless they find funding to develop a management plan themselves. Yet, some communities may be offered the chance to extract timber using small-scale logging permits and develop a large-scale management plan with an NGO. These communities can decline both offers, accept both or accept one of them. All three situations occur. Thus communities do have choices, although they are limited to the contractual arrangements described above and the availability of these choices is highly dependent on the location and resource endowments of the communities.

Thus the initial choice for a certain type of contractual arrangement is unlikely to be influenced by the desire to incur lower transaction costs. But, once established as an enterprise, the CFE managers do make choices that aim at reducing the transaction costs involved in interacting with their exchange partners. Some CFEs with short-term timber sale contracts try to sell as many species to a single timber buyer to avoid dealing with several buyers at the time. Others

sell all possible commercial species for a single price so as to sell higher volumes in preference to selling only the most expensive species for a higher price. CFEs have also negotiated more effective timber extraction methods to reduce the resources spent on paying the salaries of people working in the forest. In a similar way, the CFEs have also searched for the best way to deal with the Forest Service, inviting the officers to the forest to demonstrate the compliance with forest management regulations and establish personal and trusting relations. The market-assisted CFEs, also invest in establishing relations of trust with the timber buyers, but have limited options over their contractual conditions. If problems with the timber buyer become excessive they might, however, try to dissolve the contract through establishing relations with the Forest Service and/or NGOs.

When comparing the transaction costs incurred by the market- and NGO-assisted CFEs, the two contractual arrangements included in this study, (arrow 2 of Figure 8.1) it emerges that the market-assisted CFEs incur much lower transaction costs than the NGO-assisted CFEs. NGO-assisted CFEs incur higher transaction costs because they implement forest management activities themselves and invest time and resources in their transactions with the Forest Service, timber buyers and the NGOs themselves. The transaction costs of these decrease as they gain more experience, an indication that these CFEs learn to deal with their exchange partners. The transaction costs incurred by the market-assisted CFEs originate from the resources spent on dealing with problems they encounter during the transactions and do not change over time.

Negotiation costs are especially high for market transactions as these occur in a setting characterized by relational contracts and informality. Moreover, contracts can not be enforced legally and are therefore 'enforced' through continual negotiations. Compliance costs are especially high for the younger NGO-assisted CFEs developing their forest management plan and having to comply with the regulations. The costs of information gathering are relatively low, as little formal and deliberate information gathering takes place. Enforcement costs are low due to the absence of means to enforce contractual conditions.

Lastly (arrow 4 of Figure 8.1), CFEs with short-term timber sale contracts (NGO-assisted and self-financed) have a higher harvesting capacity, receive higher prices for their timber, log timber more continuously and consider themselves more successful. This suggests that CFE performance is significantly affected by the transaction costs that the CFEs incur with all their exchange partners. In general, the continuity of logging is strongly affected by the transaction costs incurred with the Forest Service, whereas operational activities, timber prices and the perceived success by the CFEs managers is mostly affected by the costs incurred during market transactions. The time and resources the CFEs invest in implementing transactions positively affects their performance, the resources spent in dealing with problems affect their performance in a negative way. The NGOs play an important role as they have enabled CFEs to engage in

short-term contracts with timber buyers, actively engage in forest management activities and invest in improving their transactions with other parties. Transaction costs should thus not only be seen in negative terms, purely as a 'cost' but also in positive terms, as an investment. A contractual arrangement with the lowest transaction costs does not necessarily lead to the best results.

Thus it can be concluded that it is not so much the institutional environment in Bolivia that enables or disables the establishment and performance of CFEs but more the interactions between different institutions that generate enabling or disabling circumstances. The performance of CFEs, or more generally of community forest management initiatives, should not therefore be solely attributed to internal factors, such as leadership and organizational experience, but should also consider the enabling and obstructing factors within the institutional environment.

8.3.2 Reflections on the conceptual framework

Transaction costs theory departs from the notion that enterprises choose between certain contractual arrangements on the basis of the transaction costs they incur or expect to incur under these arrangements. Moreover, it assumes that the arrangements with the lowest transaction costs are likely to generate better economic results and that, as a result enterprises are expected to choose the arrangements that involve the lowest possible transaction costs.

Whereas transaction costs have been shown to significantly influence the functioning of Bolivian CFEs, their choice of contractual arrangement for engaging in timber sales does not seem to be guided by the aim of reducing transaction costs. In Figure 8.1 the arrow between the transaction costs and the contractual arrangement indicates that the contractual arrangement is the result of a decision making process in which CFEs opt for the arrangement with the lowest transaction costs. However, as already shown, in practice communities have limited options and if they want to sell timber from their land they have to accept the (financial) services offered to them by private enterprises or NGOs irrespective of the transaction costs associated with that arrangement.

CFE managers might only become aware of the implied transaction costs after an arrangement has been established and then their choices are limited to whether they are willing to bear these costs and continue with the contract or not. The CFEs in receipt of NGO financing to develop their management plan are free to engage in short-term timber sale contracts and can therefore withdraw from forest management activities without major problems. While they have an agreement with the Forest Service to manage the forest for at least 20 years, abandonment of the forest management plan has no legal consequences, although it might later be difficult to access other types of logging authorizations to sell timber from the same forest area. CFEs engaged in long-term timber sale contracts generally experience major difficulties

in changing the contracts as they lack the financial means to do so. This situation has been referred to as 'governance inseparability', which Argyres and Liebeskind (1999) have defined as a condition in which a firm's past governance choices significantly influence the range and types of governance mechanisms it can adopt in the future. When the costs of changing to a system that is known to be more efficient are too high, the firm is said to be 'locked-in' by past decisions (Liebowitz and Margolis 1995).

Thus the order in which the contractual arrangements and the transaction costs are presented in the framework should be reversed so as to indicate that CFEs enter into certain contractual arrangements firstly as a result of the influence of the institutional environment and then later experience the transaction costs associated with these arrangements. A backward -pointing arrow would show the possibility of reacting to the encountered situation by reducing transaction costs. However the opportunities for doing this depends on the extent to which a CFE is 'locked into' and the extent to which it might be able to revoke the contract or renegotiate its conditions.

Some communities may decide to invest in elaborating a forest management plan themselves, after seeing the success of neighbouring CFEs or if they cannot find an NGO or private enterprise to finance this for them. This is perhaps the most expensive path to acquiring a timber logging authorization. Such a decision is based on envisioned future benefits, such as assured access to forest resources and the right to exclude other parties from benefiting from the forest resources on community land. This implies that communities that are convinced of their objectives can 'somehow' find the necessary resources to develop a management plan and that these CFEs have faith in the continuation of the current forest regime.

Better results with high transaction costs

One counterintuitive result of this research is that CFEs that engage in arrangements with higher transaction costs perform better than those engaged in arrangements with lower transaction costs. However, Ruben et al. (2007) and Kim and Mahony (2006) show entrepreneurs may choose to engage in contractual arrangements with higher transaction costs that give better final results. Kim and Mahony (2006) argue that investments that result in increased transaction costs may serve an important function in contributing to innovation and new discoveries. The establishment of CFEs is a new activity that runs counter to the perceptions of other actors in society, especially those involved in the forest sector, that farmers and indigenous people are unable to make productive use of the forest and run a forest enterprise. Thus it is important for CFEs to invest in improving their ability and reputation and the perception that they are not capable of operating, a choice of strategic importance in an informal timber market that is largely based on relations of trust. Della Giusta (2008) also shows that the establishment of trustworthy connections, that enable or facilitate transactions requires investments and that these costs are hardly ever discussed in the literature.

It is clear that low transaction costs do not always guarantee better enterprise performance and that to reach better results it often requires investments that will give higher returns in the long run. It is therefore important to consider both the benefits as well as the costs derived from transactions (Della Giusta 2008) which may include unquantifiable benefits, such as future access to forest resources. Kim and Mahoney (2006) also argue for a more dynamic approach to assess transaction costs where the unknown future benefits of transactions, such as the establishment of institutions to protect property rights, are also considered.

Asset specificity

The private timber enterprises that invest in the development of community forest management plans make highly asset specific investments. According to economic theory, these enterprises make themselves vulnerable to opportunistic behaviour from the other party, in this case the communities (Rao 2003). In practice, however, the enterprises occupy a rather strong position vis-à-vis the communities and are the more opportunistic of the two parties. The contracts signed between the enterprises and the CFEs are very vague, specifying only the duration of the contract without details of prices or timber volumes and are often only signed by a single community leader. The vagueness of the contracts is used as a strategy by the enterprises to safeguard their investments (see also: Wernerfelt 2004; 2007).

Bromley (1997) showed that the opportunities that people have to appropriate land depends on the perception of others in society. Here it appears that the vague long-term contracts used by private enterprises in the northern part of Bolivia are protected by elite social groups who accept the appropriation of timber on, recently established, community lands by private enterprises. As these elite groups occupy important political and economic positions CFEs encounter major problems in dissolving these contracts, even when non-compliance by the enterprises can be clearly demonstrated.

Overall the framework built on elements from New Institutional Economics and transaction costs approach have proved useful in analyzing the effects of the institutional environment on CFEs. However, a few further observations are warranted. First, the ideas that enterprises can freely choose from a wide range of alternative contractual arrangements and that they take decisions based on the objective to reduce transaction costs do not hold for Bolivian CFEs. Rather, it has been shown that the institutional environment severely limits the available choices. It has therefore been proposed to reverse the order in which the contractual arrangements and transaction costs occur in the framework. Secondly, the choices available to the communities are not only defined by the institutional environment but also by the resource endowment and location of the communities. These environmental aspects have not been considered in this model but do define the choices available to communities. Third, the assumption that transaction costs are detrimental to the performance of an enterprise needs to be reconsidered, as the research clearly shows that transaction costs may function

as investments to improve CFE performance. The last consideration is related to the dynamic character of the institutional environment as this framework cannot properly account for any changes in the patterns of interaction between the CFEs and their exchange partners brought about by changes in the institutional environment. The model is too static and cannot be used to predict the likely scale of transaction costs expenditures in the future.

8.4 Discussion on research methods

8.4.1 On the use of perceptions in assessing transaction costs

Quantifying transaction costs is a complicated matter and few studies have tried to quantify all the possible transaction costs incurred by an enterprise. Both data availability as well as the enormous amount of work implied have constrained researchers from seeking to meticulously measure transaction costs (McCann et al. 2005). Information on the transaction costs incurred by Bolivian CFEs does not exist. Most CFE managers do not even keep track of expenditure and income and are unlikely to keep separate track of transaction costs. An alternative method of assessing transaction costs had to be devised. Rather than quantifying the exact expenditures on transaction costs, the perception of the CFEs managers on the magnitude of these costs was assessed.

CFE managers were requested to assess the size of the transaction costs incurred for a specific activity with a specific exchange partner by assigning a number of between one and five. However, it was clear that the managers found it difficult to make this kind of assignation as they had no point of comparison; how do you assess what a 'few' or 'a lot' is if you do not know what the 'average' is. So the approach had to be changed and rather than asking the CFE managers to make an assignation the researcher made the assignation based on the information provided by the managers.

The disadvantage of this approach was that it meant the researcher reinterpreting the perceptions of the CFE managers. Its advantage however was that such a systematic reinterpretation meant that the data became more comparable and this was especially important when analyzing the relationship between quantitative data (such as harvesting capacity) and the transaction costs incurred. Another advantage of using the perceptions of CFE managers is that it is far quicker to ask people about the magnitude of expenditures than to sift through administrative records, which are only kept by a minority of, administratively well-organised, CFEs. Reliance on such an approach would in fact have meant excluding a majority of the CFES who lack such formal record keeping. Another advantage of using perception rather than records of expenditures is that it allowed a larger group of CFEs to be assessed in a shorter time period. Most importantly, trying to present actual costs for many of the CFEs would give a false sense of accuracy as no good quality information is available.

One major disadvantage of assessing transaction costs on the basis of perceptions is that the results can be influenced by the timing of the interviews. In one CFE, for example, the CFE managers were engaged in a conflict with the NGO that had been assisting them for over ten years and were perhaps overly critical of their partner. This aspect, however, can be a shortcoming of all interview and questionnaire based research. The author is confident that this temporal bias in data collection could be overcome through her seven years working experience in the region, a repetition of most interviews which were carried out twice in 2004 and 2006, repeated interactions with CFE managers (for instance, meeting them at national events) and interviews with other informants.

Transaction costs were considered as covering both the time and resources put into transactions, as well as the energy the CFE's manager had to invest in the 'hassle' experienced during transactions. Both concepts, 'time and resources' and 'dealing with hassle or difficulties' were assessed by a single variable, an estimation of the total amount of time, resources and energy spent on transactions. During the interviews these two concepts appeared to be difficult to combine. CFE managers would insist that they did not experience any 'hassle' but actually they never really engaged in the transaction at all. The activity was thus not necessarily easy to implement but simply not implemented. Investing 'time and resources' and investing 'energy to deal with hassle and difficulties' appear to reflect two different aspects of transaction costs and hence the need for separate assessment. While analysing the data, this differentiation appeared to be of great importance in understanding the role of the transaction costs in influencing CFE performance.

8.4.2 The quality and availability of data

The national office of the Forest Service as well as some of its regional and local offices were generally very helpful in sharing information on logging authorizations and volumes of logged timber. The information managed by the different offices of the Forest Service was not always consistent and sometimes the needed information had got lost because of accidents with computers, robberies, changes of personnel etc. As a result the quantitative information on volumes of logged timber should be regarded as moderately, rather than completely, reliable. Information on some market-assisted CFEs was difficult to obtain. The researcher expended great efforts in gathering all of the available information and even its reliability was not always of the standard one would wish, it was all that was available. While the quality of information may be considered an important disadvantage for quantitative assessments, even imperfect and partial information can provide additional insight into a situation about which there was previously hardly any information.

8.4.3 Use of a mixed methodology

This study has been built up through an initial exploratory phase and a second phase during which the collection of qualitative and quantitative data was combined. The resulting main

strength and main weakness of this study are its all-embracing character. Different research phases, different research methods and different types of data sources for a large number of cases resulted in the collection of a large amount of varied information. The disadvantage of dealing with such a volume and mixture of information is that it is difficult to analyze it with the precision it deserves and select the key issues from the minor details. The advantage of having access to this type of information is that its richness repeatedly forces the researcher to reconsider seemingly straightforward conclusions.

This research also greatly benefited from its comparative approach. Every community is different, all managers tell different stories and all timber buyers, forest officers and NGO technicians consider their stories to be unique. Often however their stories have much in common, although this often only becomes visible to someone who has had the opportunity to listen to all of them. The quantitative information enabled the author to see what the Dutch call 'the red thread'; to understand the similarities and commonalities. The results obtained from the transaction costs analysis show a picture of the factors that influence the establishment and performance of CFEs that was much more consistent than expected. Moreover the coherent results from the analysis of the influence of transaction costs on CFE performance strengthened the researcher's confidence in the quality of the data. The qualitative information helped contextualise these statistical analyses and to understand the underlying processes.

8.5 Wider implications of the research

8.5.1 Comments and recommendations

This research was not primarily designed to inform policy makers but rather to understand a process taking place in society, about which many people have an opinion but which has not been widely empirically researched. The performance of Bolivian CFEs is widely discussed among aid agencies, policy makers and even timber buyers in Bolivia, with most people basing their opinions on their own experiences and expectations. Together these opinions have created a kind of 'shared common wisdom' about the subject that has been neither supported or refuted by any systematic research. The following section provides some observations and recommendations for policy makers and other actors active in the forest sector (including NGO technicians). The comments and recommendation have been presented in the form of statements to generate discussion and should not be taken as proposals that can be implemented in an 'off the shelf' manner.

- To enhance the establishment and functioning of the Bolivian CFEs and different types of community based natural resource management initiatives, it is crucial to pay sufficient attention to the wider institutional environment instead of mainly focusing on providing assistance to individual community organizations.

- The use of forest resources, especially timber, by land and forest owners follows market mechanisms in that owners seek to exploit their timber resources in a more cost-effective way. Policies aim to promote sustainable resource use should focus as much (if not more) upon influencing decision making by market actors as on decision making by the resource owners.
- Extensive forest management regulations tend to increase the inventiveness with which timber traders find ways of evading the law, rather than to increased compliance with the law. This is particularly the case in situations where the state is unable to monitor and control the increased amount of logging activities that are occurring as a result of increased local participation in forest management activities. More attentions might therefore be given to the implementation and monitoring of regulations than on the elaboration of detailed regulations that will not be followed up.
- NGOs have played a very important role by subsidizing, informing and training community members to stand up to timber traders. This positive effect of NGO assistance may have passed almost unnoticed, as NGOs are more oriented towards goals such as forest conservation and improving human rights and livelihoods. Whereas NGOs have financed forest management plans this has enabled the CFE managers and community members to enter in negotiations with timber buyers on a more equal footing than CFEs that depend on capital investments from timber buyers.
- NGOs, however, do not recognize the relational and informal character of the timber market and the necessity for CFEs to play the game by the existing rules if they are to survive in this type of market environment. The standard 'solution' to this problem offered by NGOs is to advocate for markets that uses more formal trading mechanisms, such as the market for certified timber. NGOs that wish to establish functioning CFEs, however, have to deal with the market mechanisms that operate locally. Flexibility is an important characteristic of these markets that enables transactions to take place. The use of strict conditions for contract compliance does not fit in this kind of market environment. It jeopardizes the economic performance and potential of the CFEs and should not be advocated by NGOs. When advising CFEs, NGOs should therefore give more thought to economic theory and the market conditions in which they operate and discard some of their ideological baggage.
- Due to assumptions about the inability of local people to manage forest resources, the Bolivian Forest Service has missed a chance to cooperate with the rural communities to stimulate sustainable forest use. Indeed, the strict application of bureaucratic regulations has pushed many farmers and community members into possibly unsustainable small-scale logging activities. Policy makers should be more aware of the limits of the law and regulations and the power of cooperation with local stakeholders.

8.5.2 Suggestions for future research

This study focused on the institutional factors affecting the performance of CFEs largely because most studies on community forest management initiatives have focussed on internal and organizational aspects. What is now missing is a connection between the 'internal' and the 'external'. It has been observed, for example, that community organizations are strongly influenced by their success in selling timber. When the successes of an enterprise are small there may be little incentive for participation and the CFE managers may not have to meet high standards of accountability. However when the benefits increase, more people participate in decision making and demand justification from the CFE managers (see also: Behera and Engel 2006).

While this study has focussed on the functioning of CFEs, it has also been shown that local people have many other alternative mechanisms for engaging in commercial forest activities. These alternative mechanisms have not been considered in detail here, although their existence and functioning may greatly affect the performance of CFEs, especially as the timber prices paid under alternative logging mechanisms are generally lower.

On a related theme, one also needs to consider the impact of the timber market on how farmers and communities use the forest. This aspect seems to be relatively neglected by scientists and policy makers alike (see also: Sierra 2001) and needs further consideration. In that sense this research has merely been able to identify its importance.

Researchers have given a lot of attention to the effects of decentralization of certain, although limited, decision making powers and responsibilities to the municipalities. This research, however, suggests that it is the devolution of decision making power over forest use to private and collective landowners, rather than the decentralization of decision making power to municipalities, that has influenced forest use at the local level. This observation is in line with Pacheco's (2006) observation when analyzing changes in forest use at the local level, that one needs to consider not only the decentralization of power but also changes in access to resources that come about from devolution policies. The extent to which the decentralization of implementing capacity and some decision making power to municipalities has influenced the growth of local timber markets is still unclear and worthy of investigation.



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Acronyms

AFIG	Asociación Forestal Indígena Guarayo/Guarayo Indigenous Forest Association
ANOVA	Analysis of Variance
APCOB	Apoyo Para el Campesino-Indígena del Oriente Boliviano
ASL	Asociación Social de Lugar / Local Social Association
BOLFOR	Bolivia Forestal / Forest Project USAID in Bolivia
CC	Compliance Costs
CDF	Centro de Desarrollo Forestal / Forest Development Centre
CFE	Community Forest Enterprise
CIDDEBENI	Centro de Investigacion y Documentacion para el Desarrollo del Beni
CIPCA	Centro de Investigación y Promoción del Campesinado / Farmers Research and Promotion Centre
D	Difficulty
E	Effort
EC	Enforcement Costs
FAO	Food and Agriculture Organization of the United Nations
FMP	Forest Management Plan
GIS	Geographic Information System
HC	Harvesting Capacity
IC	Information Costs
INRA	Instituto Nacional de Reforma Agraria / National Institute of Agrarian Reform
LP	Logging Plan
IPHAE	Instituto para el hombre, Agricultura y Ecología / Institute for Men, Agriculture and Ecology
MED	Ministry of Economic Development
MDSMA	Ministerio de Desarrollo Sostenible y Medio Ambiente / Ministry of Sustainable Development and Environment
MSDP	Ministry of Sustainable Development and Planning
NC	Negotiation Costs
NGO	Non Governmental Organization
NIE	New Institutional Economics
NR	Natural Resources
NRM	Natural Resource Management
OTB	Organización Territorial de Base / Land-based Grassroots Organizations
PROMAB	Programa Manejo de Bosques de la Amazonía Boliviana
SF	Superintendencia Forestal / Forest Service
SNV	Netherlands Development Organization
SPSS	Computer program for statistical analysis
TA	Technical Assistance
TC	Transaction Costs

TCO	Tierra Comunitaria de Origen / Original Community Land (Indigenous Territory)
TIM	Territorio Indígena Multiétnico / Multiethnic Indigenous Territory
T&R	Time and Resources
UCPOI	Unidad de Coordinación con Pueblos y Organizaciones Indígenas / Unit of Coordination with Indigenous People and Organizations
UFM	Unidad Municipal Forestal / Municipal Forest Unit
UOB	Unidad Operativo de Bosques / Operational Unit of the Forest Service
USAID	United States Agency for International Development



Summary

The overall objective of this research was to determine whether and how the institutional environment influences the establishment and performance of Community Forest Enterprises (CFEs) in Bolivia. This study defines CFEs as organizations that: (1) manage collectively owned forests in name of all community members and (2) follow forest management regulations established by the 1996 Forest Law. The theoretical point of departure for this research is that the institutional environment can both facilitate and obstruct CFE performance. Transaction costs, the costs of doing business, are used as an indicator of the influence of the institutional environment. An enabling institutional environment leads to low transaction costs and better CFE performance, whereas an obstructive institutional environment creates higher transaction costs and poorer CFEs performance.

Four research questions have been formulated:

1. How have changes in land and forest legislation influenced forest use by local people in Bolivia and how have these changes lead to the emergence of CFEs?
2. What contractual arrangements do Bolivian CFEs enter into and for what reasons?
3. How can the contractual arrangements between CFEs and their exchange partners be characterized in terms of transaction costs? Are they cost effective, as predicted by transaction cost theory? And how do these costs relate to the institutional environment?
4. How do transaction costs influence the functioning of the CFEs?

The research shows that the Agrarian Land Reform Law (INRA) and the Forest Law, both enacted in 1996 have changed the use of forest resources considerably. Under these laws, land and exclusive forest user rights were assigned to farmers and indigenous people and the privately owned forest area increased at the expense of the forest area under state concessions. For small and medium enterprises, that had difficulties in accessing timber resources under the previous forest legislation, this represented an opportunity to directly negotiate access to timber with private and collective land owners. Consequently, the number of actors involved in timber extraction and processing increased considerably. Forest entrepreneurs (timber processing enterprise, traders and forest professionals) started offering landowners (private and collective) a range of services: to arrange logging permissions for them, extract the trees and sell the timber. These entrepreneurs apply for the cheapest, most accessible and least regulated type of small-scale logging authorizations from the Forest Service. Most farmers and communities use this type of authorization to extract timber from their plots.

CFEs differ from other forest users because they base their logging operations on *de jure* sustainable forest management plans and manage the forest collectively. The number of communities with a CFE and an approved forest management plan increased from 0 to 100 between 1997 and 2006. Together the CFEs manage over one million hectares of forest. Considering that most farmers and communities are enticed by timber buyers to apply for small-scale logging authorizations, why do other communities decide to prepare large scale, long term forest management plans?

The research shows that the emergence of CFEs is mainly a response to external incentives. Communities with large quantities of good quality timber that require substantial investments for extracting are attractive partners for private enterprises who may offer to develop a large scale forest management plan for these communities (market assisted CFEs). Indigenous communities with large forest areas that have been working with NGOs before may be offered the opportunity to develop a forest management plan by an NGO (NGO assisted CFE). A minority of the CFEs, located in regions where other successful CFEs are located have developed large-scale management plans independently (self financed CFEs).

The source of financing for management plans is very influential in determining the type of contractual relations that are established between the CFEs and the timber buyers, the Forest Service and NGOs. Market-assisted CFEs that are indebted with the enterprises, sign long term timber sale contracts, do not take part in forest management activities, hardly interact with the Forest Service and have little knowledge about their rights and obligations. NGO-assisted and self financed CFEs sign short term timber sale contracts and frequently negotiate with buyers over timber prices, the number of species, extraction activities and payment schemes. They actively engage in timber logging and bureaucratic processes with the Forest Service, although the extraction of timber is mostly carried out by the buyers.

Market assisted CFEs experience relatively low transaction costs compared to the NGO assisted and self financed CFEs. This is because the market assisted CFEs outsource all management activities whereas the other CFEs implement management activities themselves and therefore interact with buyers, the Forest Service and NGOs on a more regular basis. Transaction costs originate either from the time and resources spent on activities or from dealing with problems. Market-assisted CFEs incur more transaction costs from dealing with problems with the Forest Service and the market, and these costs remain constant over time. The NGO-assisted and self financed CFEs incur higher transaction costs due to the time and resources spent on transactions, the transaction costs they incur that originate from dealing with problems reduces over time.

Four different indicators were used to analyze CFE performance: harvesting capacity, continuity of logging operations, timber prices and a self assessment of accomplishment. The NGO-assisted and self financed CFEs score better on all these indicators. Regression analysis show that CFE performance depends strongly on the time and resources the CFEs invest in market transactions. The main influence of the Forest Service is on the continuity of the CFEs and timber prices. NGO assistance enhances CFE performance because they enable the CFEs to assume responsibility for forest management activities, sign short term timber sale contracts and invest in their enterprises.

Three conclusions can be drawn from this study. First, the institutional environment in Bolivia is not unambiguously enabling or obstructing for CFEs. Rather it is the combination of institutional factors together with resource endowments and the location of the communities that determine the performance of CFEs. Second, the institutional environment is, if not the main determinant, then at least a very strong influence on the establishment and performance of CFEs. CFEs with short term timber sale contracts can improve their performance by investing time and resources in market transactions. Third, high transaction costs are not always associated with poor enterprise performance as predicted by the theoretical framework but can also function as an investment in future opportunities.



Samenvatting (summary in Dutch)

Het doel van dit onderzoek is vast te stellen of en hoe de institutionele omgeving van invloed is op de oprichting en het functioneren van dorpsbosbedrijven (DBB). DBB's worden in deze studie gedefinieerd als organisaties die 1) gemeenschappelijk bos beheren in naam van alle dorpsbewoners, en 2) daarbij de regels voor bosbeheer opvolgen zoals die zijn vastgelegd in de Boswet van 1996. Het theoretische uitgangspunt van het onderzoek is dat de institutionele omgeving het functioneren van de DBB's zowel kan ondersteunen als kan tegenwerken. Transactiekosten, de kosten van het zakendoen, worden daarbij aangemerkt als indicator van de invloed van de institutionele omgeving. Een ondersteunende institutionele omgeving zou daarbij leiden tot lagere transactiekosten en beter presterende DBB's, terwijl een tegenwerkende institutionele omgeving zou leiden tot hogere transactiekosten en slechter presterende DBB's.

Er zijn vier onderzoeksvragen geformuleerd:

1. Hoe hebben veranderingen in wetgeving met betrekking tot land en bos het bosgebruik door de lokale bevolking in Bolivia beïnvloed, en hoe hebben deze veranderingen geleid tot de oprichting van DBB's?
2. Welke contractuele regelingen gaan Boliviaanse DBB's aan, en met welke redenen?
3. Hoe kunnen de contractuele regelingen tussen DBB's en hun uitwisselingspartners worden gekarakteriseerd in termen van transactiekosten? Zijn ze kosteneffectief, zoals voorspeld door de transactiekosten theorie? En wat is de relatie tussen de transactiekosten en de institutionele omgeving?
4. Hoe beïnvloeden de transactiekosten het functioneren van de DBB's?

Uit het onderzoek blijkt dat de Agrarische Landhervormingswet (INRA) en de Boswet, beide ingegaan in 1996, eigendom en gebruiksrechten van natuurlijke hulpbronnen aanzienlijk hebben veranderd. Onder deze wetten werden zowel land als het exclusieve gebruiksrecht van bosproducten toegewezen aan boeren en de inheemse bevolking. Het areaal bos in particulier en gemeenschappelijk bezit nam daardoor toe ten koste van het areaal bos onder bosconcessies uitgegeven door de staat. Kleine en middelgrote bedrijven, die voorheen moeite hadden om toegang te krijgen tot bosproducten, kregen zo de mogelijkheid om, door directe onderhandelingen, met de particuliere en collectieve landeigenaren toegang te krijgen tot hout. Het gevolg daarvan was een sterke toename van het aantal actoren dat betrokken was bij het oogsten en verwerken van hout in bosrijke regio's. Bosondernemingen (houtverwerkingsbedrijven, handelaren en andere sectoren die op beroepsmatige wijze met bos werken) begonnen een reeks van diensten aan landeigenaren aan te bieden (het regelen van houtkapvergunningen, het vellen en uitslepen van bomen) om zich te verzekeren van toegang tot hout. De bosondernemingen maken gebruik van kleinschalige kapvergunningen die goedkoop, toegankelijk en minder gereguleerd zijn. De extractie van hout uit bossen in bezit van boeren en gemeenschappen gebeurt derhalve door middel van deze kleinschalige kapvergunningen.

DBB's verschillen van andere bosgebruikers omdat zij hun kapactiviteiten baseren op *de jure* duurzame langlopende bosbeheerplannen en omdat zij het bos gemeenschappelijk beheren. Het aantal gemeenschappen met een goedgekeurd bosbeheerplan is toegenomen van 0 in 1997 tot 100 in 2006. Bij elkaar beheren de DBB's meer dan een miljoen hectare bos. In aanmerking genomen dat de meeste boeren en gemeenschappen door de opkopers van hout worden overgehaald kleinschalige kapvergunningen aan te vragen, is het de vraag waarom gemeenschappen met DBB besluiten grootschalig en langlopende bosbeheerplannen op te stellen.

Uit het onderzoek blijkt dat de oprichting van DBB's voornamelijk een respons is op externe drijfveren. Particuliere bosbedrijven bieden aan grootschalige bosbeheerplannen voor gemeenschappen op te stellen die grote hoeveelheden hoogwaardige kwaliteit hout bezitten waarvan de extractie substantiële investeringen vergt (marktondersteunde DBB's). Inheemse gemeenschappen met een groot areaal bos die contact hebben met een NGO kunnen het aanbod krijgen met ondersteuning van een NGO een bosbeheerplan op te stellen (NGO-ondersteunde DBB's). Een minderheid van de DBB's heeft zelfstandig een bosbeheerplan opgesteld in navolging van succesvolle DBB in dezelfde regio's (zelfgefinancierde DBB's).

De herkomst van de financiering van de beheerplannen is van grote invloed op het soort contractuele afspraken die ontstaan tussen de DBB's en de houtkopers, de Bosdienst en de NGO's. Marktondersteunde DBB's die schulden hebben bij particuliere bosbedrijven, ondertekenen langlopende houtverkoopcontracten, nemen geen deel aan bosbeheeractiviteiten, hebben nauwelijks contact met de bosdienst en hebben weinig kennis van hun rechten en plichten. NGO-ondersteunde en zelfgefinancierde DBB's ondertekenen kortlopende houtverkoopcontracten en onderhandelen regelmatig over houtprijzen, het aantal te verkopen boomsoorten, de planning van oogstactiviteiten en betalingsschema's. Zij zijn actief betrokken bij de houtkap en bureaucratische handelingen met de bosdienst, hoewel de extractie van stammen uit het bos meestal wordt uitgevoerd door de opkopers.

Marktondersteunde DBB's hebben relatief lage transactiekosten in vergelijking met de NGO-ondersteunde en zelfgefinancierde DBB's. Dit komt doordat de marktondersteunde DBB's alle beheer en extractie activiteiten uitbesteden, terwijl de andere DBB's de beheeractiviteiten zelf uitvoeren en daarvoor veelvuldig contact hebben met de houtkopers, de bosdienst en NGO's. Transactiekosten komen voort uit de tijd en middelen die worden besteed aan handelsactiviteiten enerzijds en aan het afhandelen van problemen anderzijds. De NGO-ondersteunde en zelfgefinancierde DBB's ondervinden hogere transactiekosten door de tijd en middelen die besteed worden aan uitwisselingsactiviteiten dan de marktondersteunde DBB's. De transactiekosten die zij ondervinden voor het omgaan met problemen verminderen in de tijd door de opgedane ervaring. Marktondersteunde DBB's ondervinden meer transactiekosten

door het afhandelen van problemen met de bosdienst en de markt en zien deze kosten in de tijd niet afnemen.

Vier verschillende indicatoren zijn gebruikt om het functioneren van de DBB's te analyseren: oogstcapaciteit, continuïteit van de kapactiviteiten, houtprijzen en een eigen beoordeling van het succes van het bedrijf. De NGO-ondersteunde en zelfgefinancierde DBB's scoorden beter op al deze indicatoren. Regressieanalyses toonden aan dat het presteren van de DBB's sterk afhangt van de tijd en de middelen die de DBB's investeren in markttransacties. Interactie met de bosdienst is vooral van invloed op de continuïteit van de kapactiviteiten en op de houtprijs. Ondersteuning door NGO's verbetert het presteren van de DBB's doordat de DBB's de mogelijkheid krijgen zelf de verantwoordelijkheid te nemen voor bosbeheeractiviteiten, kortlopende houtverkoopcontracten te ondertekenen en te investeren in hun onderneming.

Uit deze studie zijn drie conclusies te trekken. Ten eerste, de DBB worden niet ondubbelzinnig ondersteunt of tegengewerkt door de institutionele omgeving. Het functioneren van de DBB wordt daarentegen bepaald door de combinatie van institutionele factoren, de ligging van dorpen en hun toegang tot hulpbronnen. Ten tweede, de institutionele omgeving heeft, indien geen doorslaggevende effect, dan toch wel een zeer sterke invloed op de oprichting en het presteren van de DBB's. Tenslotte, hoge transactiekosten vallen niet altijd samen met slecht presterende ondernemingen, zoals voorspeld door de transactiekostentheorie, maar kunnen ook gezien worden als investering in toekomstige mogelijkheden.



Resumen (summary in Spanish)

El objetivo general de esta investigación fue determinar si el ambiente institucional influye en el establecimiento y desempeño de Empresas Forestales Comunitarias Forestales (EFCs) en Bolivia y cómo lo hace. El estudio define a las EFCs como organizaciones que (1) manejan sus bosques colectivamente en nombre de todos los miembros de la comunidad y (2) siguen las regulaciones de manejo forestal establecidas por la ley forestal de 1996. El punto de partida teórico para esta investigación es que el ambiente institucional tanto puede facilitar como obstruir el desempeño de las EFCs. Los costos de transacción, es decir los costos de hacer negocios, son usados como un indicador de la influencia del ambiente institucional. Un ambiente institucional favorable conduce a bajos costos de transacción y un mejor desempeño de las EFCs, mientras que un ambiente institucional desfavorable crea costos de transacción altos y bajos niveles de desempeño de las EFCs.

Fueron formuladas cuatro preguntas de investigación:

1. ¿Cómo han influenciado los cambios en la legislación de tierras y bosques en el uso del bosque por parte de la gente local, y cómo estos cambios han resultado en la formación de EFCs?
2. ¿En qué arreglos contractuales entran las EFCs bolivianas y por qué razón?
3. ¿Cómo pueden ser caracterizados los arreglos contractuales entre las EFCs y sus socios de intercambio en términos de costos de transacción? Son estos arreglos efectivos en términos de costos, como predice la teoría de costos de transacción? ¿Y cómo se relacionan estos costos con el ambiente institucional?
4. ¿Cómo influyen los costos de transacción en el funcionamiento de las EFCs?

Esta investigación muestra que la Ley de Reforma Agraria (INRA) y la Ley Forestal, ambas aprobadas en 1996, han cambiado considerablemente el uso de los recursos forestales. Bajo el marco de estas leyes, se asignaron tierra y derechos exclusivos de uso del bosque a campesinos e indígenas, lo que ocasionó que el área de bosque en propiedad privada aumente a expensas del área de bosque en concesiones en manos del estado. Para las empresas pequeñas y medianas que tenían dificultades en acceder al recurso maderero bajo el anterior marco legal, el cambio representó una oportunidad de negociar directamente con propietarios individuales y colectivos el acceso al recurso maderero. Consecuentemente, el número de actores relacionados a la extracción y procesamiento de madera ha aumentado considerablemente. Las empresas forestales (como ser empresas procesadoras de madera, intermediarios y profesionales forestales) comenzaron a ofrecer una serie de servicios a los propietarios (privados y colectivos): obtención de permisos de aprovechamiento, extracción de troncos, venta de madera. Estos empresarios tramitan los permisos de aprovechamiento más baratos, más accesibles y menos regulados del régimen forestal. Los campesinos y comunidades usan este tipo de autorización para sacar madera de sus áreas agrícolas y forestales.

EFCs difieren de los otros usuarios del bosque porque basan sus operaciones forestales en planes de manejo forestal requeridos por el régimen forestal y manejan sus bosques de manera colectiva. El número de comunidades que cuentan con una EFC y tienen un plan general de manejo forestal aprobado por el ente regulador ha aumentado de 0 a 100 entre 1997 al 2006. Las EFCs en conjunto manejan más de un millón de hectáreas de bosque. Considerando que la mayoría de los campesinos y comunidades son tentados por compradores de madera a tramitar autorizaciones de aprovechamiento para áreas de pequeña escala, ¿porque es que otras comunidades deciden preparar planes generales de manejo forestal de gran escala y a largo plazo?

Esta investigación muestra que el surgimiento de las EFCs se da principalmente como una respuesta a incentivos externos. Las comunidades con grandes cantidades de madera de buena calidad que requieren inversiones substanciales para la extracción de la misma son socios atractivos para empresas privadas, las cuales pueden ofrecer a las comunidades la elaboración de los planes de manejo de gran escala (EFCs promovidas por el mercado). Las comunidades indígenas que tienen áreas de bosques extensas, que han venido siendo apoyadas por ONGs pueden recibir la oferta de apoyo para la elaboración del plan de manejo por parte de una ONG (EFCs asistidas por ONGs). Una minoría de las EFCs, localizadas en regiones donde existen otras EFCs exitosas han desarrollado planes de manejo de manera independiente (EFCs autofinanciadas).

La fuente de financiamiento del plan de manejo es muy influyente en la determinación del tipo de relación contractuales que se establece entre la EFCs y sus socios de intercambio, como ser el comprador de la madera, la Superintendencia Forestal y la ONG. EFCs promovidas por el mercado que tienen una deuda con una empresa privada, firman un contrato a largo plazo, no realizan actividades de manejo forestal, casi no interactúan con la Superintendencia Forestal y tienen poco conocimiento de sus derechos y obligaciones. Las EFCs asistidas por ONG o autofinanciadas firman contratos de venta de corto plazo y negocian frecuentemente con los compradores sobre los precios de la madera, el número de especies, las actividades de extracción y los esquemas de pago. Estas EFCs se involucran en las actividades de aprovechamiento y los procesos burocráticos requeridos por la Superintendencia Forestal, aun cuando la extracción es realizada generalmente por los compradores.

EFCs promovidas por el mercado tienen relativamente un bajo costo de transacción en comparación con las EFCs asistidas por ONGs o autofinanciadas. Esto se debe a que las EFCs promovidas por el mercado delegan todas las actividades relacionadas con el manejo a las empresas privadas, mientras que las otras EFCs implementan sus actividades de manejo directamente, y por lo tanto, interactúan con los compradores, la Superintendencia Forestal y ONGs de una manera más regular. Los costos de transacción se originan ya sea del tiempo y de los recursos gastados en las actividades o en la búsqueda de soluciones a problemas. Las

EFCs promovidas por el mercado incurren mayormente en costos de transacción relacionados a solucionar problemas con la Superintendencia Forestal y el mercado, y estos costos se mantienen constantes en el tiempo. Las EFCs asistidas por ONGs o autofinanciadas incurren en mayores costos debido al tiempo y recursos gastados en las transacciones, mientras que sus costos de transacciones relacionados a la solución de problemas disminuye en el tiempo mientras vayan adquiriendo experiencia.

Se utilizaron cuatro diferentes indicadores para analizar el desempeño de las EFCs: capacidad de aprovechamiento, continuidad en las operaciones de aprovechamiento, precios de la madera y autoevaluación del éxito de la EFC. Las EFCs asistidas por ONG y las autofinanciadas tienen un mejor puntaje en todos estos indicadores. Los análisis de regresión realizados muestran que el desempeño de las EFCs depende grandemente del tiempo y de los recursos que la empresa invierte en las transacciones con el mercado. La principal influencia que tiene la Superintendencia Forestal es en la continuidad de las EFCs y en el precio de la madera. La asistencia de las ONGs mejora el desempeño de las EFCs porque estas organizaciones facilitan que las EFCs asuman responsabilidades de las actividades de manejo forestal, firmen contratos de venta de corto plazo e inviertan en sus empresas.

Se puede sacar tres principales conclusiones de este estudio. La primera es que el ambiente institucional en Bolivia no facilita ni obstruye necesariamente el desarrollo de las EFCs. Es más bien la combinación de factores institucionales con el acceso a recursos naturales y la ubicación de las comunidades que determinan el desempeño de las EFCs. La segunda conclusión es que el ambiente institucional es, sino el mayor determinante, por lo menos el que tiene una fuerte influencia en el establecimiento y desempeño de las EFCs. Las EFCs con contratos de venta de madera de corto plazo pueden invertir tiempo y recursos en las transacciones de mercado. Finalmente, los altos costos de transacción no están siempre asociados a un bajo desempeño de las empresas como predice el marco teórico, pero más bien pueden funcionar como una inversión para futuras oportunidades.



About the author

Charlotte Benneker was born in Losser on the 23th of December 1969. She completed her secondary schooling (at Twents Carmel Lyceum in Oldenzaal and Schaepmancollege in Dongen) in 1989. Thereafter she traveled to Spain and Israel to engage in voluntary work. From 1990 to 1996 she studied natural resource management at Wageningen University. She carried out fieldwork for a first master's thesis in Cali, Colombia at the Center for the Investigation of Sustainable Systems of Agricultural Production (CIPAV) and a second and third master's thesis were carried out in cooperation with the Netherlands Development Organization (SNV) and the Fisheries Department in Samfya, Zambia on fisheries management. She obtained practical experience in forest management with the Ecuadorian NGO Jatun Sacha. In September 1996 Charlotte started to work as a volunteer for the Netherlands Development Organization in Solwezi, Zambia, assisting a local forest management organization in obtaining forest certification. From 1998 to 2003 she worked for the SNV in Santa Cruz, Bolivia as a social forestry advisor. This gave her the inspiration to deepen her knowledge about community forestry issues and in 2003 she started with her PhD research with the Forest and Nature Conservation Policy Group at Wageningen University. Charlotte is currently working on an assignment for CIFOR and has accepted a post-doc position at the ITC in Enschede to investigate the possibilities and potential for community based forest management of natural forests to be included as an eligible carbon mitigation activity under international climate change agreements.



Completed training and supervision plan



Completed Training and Supervision Plan Charlotte Benneker

Description	Department/ Institute	Month/ Year	Credits
I. General			
CERES summer school 2003	CERES	6/2003	1
Presentation proposal	FNPN/WUR	4/2004	2
CERES summer school 2004	CERES	6-7/2004	1
CERES summer school 2005	CERES	6/2005	1
II. Research Methods and Techniques and Domain Specific Theories			
Livelihood analysis and poverty reduction strategies	CERES	7/2003	2
Socio-cultural field research methods	CERES & MGS	2-3/2004	2
Policy evaluation methodology	MGS & SENSE	1-2/2004	4
III. Academic Skills			
The art of writing	CENTA	6/2005	1
Scientific writing	CENTA	3-5/2006	2
IV. Presentation of research results			
"CFE development in Bolivia"	University of Florida, Gainesville, USA	2/2005	1
"La venta de madera. Un desafío para comunidades con planes de manejo forestal"	International Forestry Fair, Santa Cruz, Bolivia.	2/2005	2
"From policy to practice: The effect of state requirements on the development of community forest enterprises in Bolivia"	PhD course and mini symposium at FEM, WUR & CERES summer school 2006	6/2006	2
"El funcionamiento de las OFCs y los costos de transacción"	SNV, Santa Cruz, Bolivia	8/2006	2
"Revisión de normas o de prácticas?"	Bolivian Forest Service	12/2006	2
"Development of community forestry under the 'new' forest law in Bolivia"	Florida University, Gainesville& Florida International University, Miami,	2/2007	2
V. Other			
Congress: Globalisation, localisation and tropical forest management in the 21 st century, Amsterdam	Agids/ UVA	10/2003	1
Conference: Innovation and entrepreneurship in forestry, Vienna	BOKU University	4/2004	1
Workshop: Community forest management in Tropical America, Quito, Ecuador	CIFOR	3/2005	1
Guest lecture MSc course environmental studies, Miami, USA	Florida International University	2/2007	2
Total			32