SCALING UP FROM THE TOP DOWN AND THE BOTTOM UP: THE IMPACTS AND GOVERNANCE OF INTER-COMMUNITY FOREST ASSOCIATIONS IN DURANGO, MEXICO

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To my family and to the memory of my mentor, Lin Ostrom.

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Gustavo A. García-López

Scaling up from the top down and the bottom up: The impacts and governance of inter-community forestry associations in Durango, Mexico

Mexico's community forestry experiment has become famous as a global model for sustainable forest use and socioeconomic development. However, many Mexican forest communities are facing significant challenges such as weak organization and limited access to markets. Scholars and practitioners have argued that connections across different levels of governance between local communities, inter-community networks, and other governmental and non-governmental stakeholders may help deal with these situations. Yet there are still gaps in our understanding of why these cross-scale arrangements form, their internal governance, their benefits, and the factors that make them successful.

This dissertation addresses these gaps by analyzing the economic, political and forest impacts that inter-community forest associations (FAs) –a type of cross-scale governance arrangement– have on forest communities; and the factors that influence FAs' effectiveness. Drawing on collective action and political economy theories applied to common-pool resources, I engaged in a year-long comparative case study of four FAs in the Mexican state of Durango –two organized by communities themselves (bottom-up) and two created by non-community actors (top-down).

The results show that FAs often form from in response to community needs, but also as adaptation strategies and responses to national policies and the political-economic context. Throughout their histories, FAs have played a crucial role in helping communities solve regional problems such as improving road infrastructure, preventing and combating forest fires, and improving market access and political representation. The results also underscore FAs' capture by peasant leaders and foresters using the organizations for profit

and for escalating into higher political positions. Finally, I show that leadership, financial autonomy, social capital and enforcement of institutions are crucial for the success of these associations.

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LIST OF ABBREVIATIONS

ARS – *Asociación Regional de Silvicultores* (Regional Silviculturalist Association)

BU – Bottom-up

CCMSS – *Consejo Civil Mexicano para la Silvicultura Sostenible* (Mexican Civil Council for Sustainable Forestry)

CFE – Community Forestry Enterprise

CNC – *Confederación Nacional Campesina* (National Peasant Confederation)

CONABIO – *Comisión Nacional para el Uso y Conocimiento de la Biodiversidad* (National Commission for the Use and Knowledge of Biodiversity)

CONAFOR – *Comisión Nacional Forestal* (National Forest Commission)

CPR – Common-Pool Resource

CSL – Cross-Scale Linkage

DGDF – *Dirección General de Desarrollo Forestal* (General Directorate of Forest Development)

DGO – Durango

ERF – *Estudio Regional Forestal* (Regional Forest Study)

FA – Forest Association

FONAFE – *Fondo Nacional para el Fomento Ejidal* (National Fund for Ejido Promotion)

FSC – Forest Stewardship Council

ICO – Inter-Community Organization

LGDFS – *Ley General de Desarrollo Forestal Sustentable* (General Law of Sustainable Forest Development)

MICH – Michoacan

NGO – Non-governmental organization

PAN – *Partido Acción Nacional* (National Action Party)

PRI – *Partido Revolucionario Institucional* (Institutional Revolutionary Party)

PROFAS – *Programa de Ordenamiento y Fortalecimiento de la Autogestión Silvícola* (Program to Order and Strengthen the Self-Management of Forestry)

SARH – *Secretaría de Agricultura y Recursos Hidráulicos* (Agriculture and Hidrological Resources Secretariat)

SEMARNAT – *Secretaría de Medio Ambiente y Recursos Naturales* (Environment and Natural Resources Secretariat)

SRNyMA – *Secretaría de Recursos Naturales y Medio Ambiente* (Durango Natural Resources and Environment Secretariat)

TD – Top-down

UAF – *Unidad de Administración Forestal* (Forest Administration Unit)

UCODEFO – *Unidad de Conservación y Desarrollo Forestal* (Forest Conservation and Development Unit)

UMAFOR – *Unidad de Manejo Forestal* (Forest Management Region)

CHAPTER 1

UNDERSTANDING CROSS-SCALE GOVERNANCE AND IMPACTS IN COMMUNITY FORESTRY: AN INRODUCTION

1.1. Forest governance: From global to local in Mexico

Global forest resources are essential for ecological reasons (biodiversity, climate regulation, water purification, etc.) as well as social ones (rural livelihoods), yet deforestation continues at high rates around the world (Chomitz et al., 2007). Original approaches to deal with the problem sought to protect the forests from humans through the so-called fortress conservation approach. Since the 1980s, this approach began to be challenged and supplanted by a more human-oriented approach that sought to integrate forest inhabitants into conservation, and increasingly, to give them the right to use the forest resources for their own benefit. Thus, community-based resource management (CBNRM) has come to be recognized as a potential strategy for development and environmental conservation, and devolving land to communities has become a policy trend (Gibson et al., 2000; Padgee et al., 2006; Sunderlin et al., 2008). At the same time, the limitations of CBNRM in an interconnected world have led many to call for more attention to factors external to the communities.

Mexico is one of the five most bio-diverse countries in the world (Barsimantov, 2010). Almost 33% of its territory is covered by temperate and tropical forests, of which approximately 70% is estimated to be under community ownership, the second highest percentage in the world (Antinori and Bray, 2005; Antinori and Rausser, 2010; Bray, 2010).[1] This is in stark contrast to

[1] There are two types of community ownership, *ejidos* and *comunidades. Ejidos* are agrarian communities in which lands which were granted by the government to landless peasants, while *comunidades* had lands recognized because of historical settlement. *Ejidos* are the predominant type, representing 92% of all such property in Mexico (Merino and Martínez, 2011). I follow Antinori and Bray (2005) in referring to both ownership categories as communities.

countries like the United States (where the majority of forests are private property) or India (where all forests are public lands). About 2,400 Mexican forest communities currently extract timber under government-approved forest management plans (Antinori and Rausser, 2010; Bray, 2010).[2] Of these, about 700 have formed community forestry enterprises (CFEs) (ibid).[3] In addition, there are hundreds of communities with conservation areas created and managed by themselves.[4] This property rights regime was an outcome of the Mexican Revolution of 1910 and the subsequent land redistribution programs embodied in Article 27 of the 1917 Constitution, which over a period of 60 years distributed land in common property to groups of landless peasants or indigenous communities. Today, an estimated 12 to 13 million people live in these forest communities; most of them are poor and depend on forests for their livelihoods (Merino and Martínez, 2011). Given that vast natural resources and populations that are at stake, the continued viability of these communities is all-important.

A substantial body of literature has highlighted the successes of the Mexican community forestry experiment (e.g. Bray et al., 2005; Bray et al., 2008; Bray, 2010; Antinori and Rausser, 2010; Merino and Martínez, 2011; Tucker, 2004). Research has shown that forests under active community management (i.e. timber extraction and/or conservation) have very low levels of deforestation, especially when compared to government-run protected areas; protect biodiversity; and contribute to poverty reduction, social capital, and conflict management (Barsimantov and Navia, 2012; Bray et al., 2008; Durán et al., 2011).

[2] CONAFOR estimates that there are between 6,000 and 6,500 total forest communities, and that 1,200 (half of the Antinori and Rausser and Bray estimate) currently have forest management (timber extraction).
[3] This number is somewhat disputed in the literature. While Bray (2010) counts as CFEs all forst communities with timber extraction, Merino (2011) proposes a narrower definition which excludes communities under *rentismo* (type II), i.e. which rent out their land to companies which organize the extraction and sale.
[4] A recent sample in the main five forest states found 44% of communities had established such areas (Merino and Martinez, 2011).

In spite of the many successes of this experiment, there are many practical challenges and empirical puzzles. According to recent surveys, only about 25% to 30% of all forest communities currently have logging permits (Antinori and Rausser, 2010; Merino and Martínez, 2011). Many of those which have permits –about 61% in the Merino and Martinez (2011) study– still operate under the system of *rentismo*,[5] under which communities rent out their land to private companies which then organize the extraction and sale, often without any participation from the communities (Merino, 2004: 49). In addition, those with community forestry enterprises face substantial challenges related to weak organization, insufficient management skills, limited access to markets and credit, and policy obstacles (Merino and Martínez, 2011).

At the same time, deforestation and forest degradation have been a continuing concern. Deforestation was estimated at an average of 1.7% between 1993 and 2000, one of the highest rates in the world, resulting in a loss of about 770,000 ha (Barsimantov, 2010), although in the following decade it decreased by approximately 50% (*El Siglo de Duango*, 10-04-2010). Illegal logging is also substantial. In 2007, the chief of the Mexican forestry enforcement agency or 'environmental police' (PROFEPA) estimated that 40% of national timber production –about 3.5 million m3 of timber per year– was from illegal sources (*Reforma,* 06-24-2007). The expansion of agriculture and grazing activities, forest fires, and illegal logging are identified as the three main proximate causes of deforestation –although some the main underlying causes have been institutions such as laws, policies and programs (Bray et al., 2004; Merino, 2004; 2012; Roy Chowdhury, 2006). These problems are combined with decreasing productivity and competitiveness of the sector and the increasing importation of cheaper wood from countries like Chile (Merino et al., 2008; Merino, 2011).

[5] Also called type II communities in oficial jargon. These represented 20% of the entire sample, which includes the communities which have potential to harvest timber but do not (so-called type I communities).

In practical terms, addressing these challenges is critical because they threaten vast forest areas and the livelihoods of millions of rural households. Conceptually, they present a paradox: a well-developed and presumably sustainable community forestry experiment coupled with high national levels of deforestation (CCMSS and RR, 2010; Barsimantov, 2010). As some authors have recently noted, this implies that there are supra-community factors that may have strong effects on community forestry (Antinori and García-López, 2008; Barsimantov, 2010; Barsimantov and Navia, 2012; Wilshusen, 2010). Within this emerging scholarship, we can identify three crucial elements. One is external actors, particularly foresters and NGOs. These have been shown to play a key supporting role in the economic and ecological success of Mexican forest communities (Antinori and Rausser, 2008; Barsimantov, 2010), and others in countries like Brazil and Guatemala (Cronkleton et al., 2008). However, this effect is not always positive, and is mediated by the regionally-contingent historical relationships with communities (Barsimantov, 2010; Klooster, 2002; Mathews, 2006; for the case of Nepal, see Thoms, 2008). The second is the political-economic context, including national policies such as logging bans (e.g. Klooster, 2000), governance reforms (e.g. Wilshusen, 2005; Taylor and Zabin, 2000), or agricultural support programs (e.g. Roy Chowdhury, 2006), sometimes combined with economic pressures such as the avocado expansion in Michoacán (Barsimantov and Navia Antezana, 2012).

The third factor is the role of cross-scale/multi-level governance arrangements such as inter-community forest associations (FAs), a form of regional collective action where multiple communities form an organization to address multiple aspects of community forestry (Antinori and García-López, 2008; Bray et al., 2012; Durán et al., 2011; Merino et al., 2008). While working in 2007 as field researcher for the *National Survey of Community Forests in Mexico*

project (see Antinori and Rausser, 2010), I found that a large number of FAs operated in the study sites of Durango and Michoacán, and that these organizations seemed to indeed play a key role in community forestry. Yet considerable uncertainties remain about FAs' inner workings, their potential impacts, and the internal and external factors influencing their effectiveness. Some authors have concluded that inter-community governance is extremely difficult and that is has usually failed in Mexico (Bofill-Poch, 2005; Bray and Merino, 2004). Most studies to date have been of a single case or comparisons of a few cases (with the few exceptions of Antinori and García-López, 2008; Antinori and Rausser, 2010; Merino et al., 2008). In the case of Antinori and Rausser (2010), the study's focus was not FAs, and the questions asked about FAs were directed at identifying the different services that these associations provide and to lesser extent the internal operating rules. Thus, it does not give us much insight into how issues of internal governance and effectiveness interact. As for the Merino et al. (2008) study, it included only one FA in Durango, and consequently it was not able to capture many of the complexities and conflicts in the state, even while it hinted at some of them. Finally, given the problems encountered in other associations across the country, their conclusion about the positive performance of associations in Durango demands further analysis.

In this dissertation, I attempt to address some of the major unexplored issues concerning cross-scale linkages in Mexico and elsewhere by looking at the processes of constitution and evolution, internal governance, and impacts of FAs in Durango, Mexico (see **Figure 1.2** below). Specifically, I seek to answer four key inter-related questions:

1. What factors lead to the formation of FAs?
2. How do these regional collective action initiatives contribute to community forestry?

3. How do top-down FAs differ from bottom-up/grassroots ones in terms of their services and benefits to member communities?
4. How do these differences affect FAs' effectiveness in positively influencing community forestry?

1.2. Analytical framework: Beyond panaceas, polycentric governance and the political economy of cross-scale linkages

To answer these questions, my research is situated within the framework of political theories of collective action and institutional analysis as applied to the study of community-based natural resource management (CBNRM). This is often referred to the "theory of the commons", which stands for common-pool resources (CPRs).[6] At the same time, this work draws on related traditions of scholarship, most notably the political economy tradition (for a distinction between the two, see Armitage, 2008; Johnson, 2001; Sikor, 2006).

Collective action studies emphasize how resource users at the local level can jointly create institutions –rules regarding resource use– which can strongly influence outcomes of resource management (Baland and Platteau, 1996; Ostrom, 1990). In recent years, there have been significant advances in this tradition that are of relevance for this study. One is the development of a diagnostic ('beyond panaceas') framework that can help researchers in dealing with the large number of variables that can potentially affect common pool resources (CPR) management outcomes. The other is the recognition of the importance of cross-scale, multi-level or polycentric governance. I combine these insights with other work from related traditions,

[6] CPRs are a type of good that are usually defined as having low "excludability" (the right and capacity of owners to exclude others from the resource) and high "subtractability" (the use by one user reduces the capacity of others to use it) (see Poteete et al., 2010). CPR theory is sometimes mistakenly called common-property theory, but the two are distinct – CPRs refer to the types of goods, and common-property refers to a type of property system, which can apply to different types of good (ibid).

referred to as the 'political economy' tradition and the related field of "political ecology", which emphasize the importance of macro-level political-economic structures, relations of power, conflict, clientelism and patronage. From these traditions I derive three basic theoretical insights, discussed in more detail in the sections below (1.2.1 – 1.2.3). Firstly, I posit that there is a need to abandon the idea of universal, generalizable laws between each independent variable and a given outcome. Rather, we need research that builds on a "diagnostic theory", which incorporates "both general theory related to causal processes and learning how to identify key variables present or absent in particular settings so as to understand successes and failures." (Basurto and Ostrom, 2009: 39). In other words, the focus should be on how different combinations of variables generate similar or dissimilar outcomes in different cases.

Secondly, I argue that cross-scale linkages, and particularly FAs, may have a positive effect on resource management outcomes, but that they cannot be considered as a necessarily positive element. Rather, the outcomes will depend on a set of specific characteristics of the linkages. Different bodies of work have focused on different characteristics, but in this work I attempt to bring them together. The underlying idea is that FAs' effectiveness is affected by both internal organizational characteristics and the political-economic context in which they operate. For instance, contrary to those who equate networks with 'social capital' (e.g. Bodin and Crona, 2009; Lin, 1999), I analyze the characteristics of social capital within each association, showing that in fact different associations have different levels of such capital despite all having similar formalized connections between communities. Finally, I posit that institutions and organizations including cross-scale arrangements, are embedded in historical and current political-economic contexts and power relations which influence their operation.

1.2.1. A Diagnostic Approach to go Beyond Panaceas

The literature on CPR management has shown that there are a considerable number of variables potentially affecting local CPR management outcomes. In his survey, Agrawal (2001; 2002) identified thirty-one such variables (see also Padgee et al., 2006; Poteete et al., 2010). Ostrom (2007) has identified a similarly large number of biophysical, socio-economic, institutional, and political variables operating at the local and supra-local levels. The usual strategy by both researchers and policy-makers has been to take one or a few variables identified as important in actors' management of CPR problems in some cases, and then transplant them to every other case as 'blueprint' solutions. This work has relied heavily on large-N statistical research. Ostrom calls this the "panacea trap". As an alternative, she proposes a 'diagnostic' approach, in which the analyst, as a doctor would with a patient, must first have an ontological framework that specifies the universe of potentially relevant factors within different categories, and then must carefully specify a particular problem and context and identify the variables which are most likely to be relevant for that situation (Ostrom, 2007; 2009; also Poteete et al., 2010).[7] As stated by Basurto and Ostrom (2009: 40):

> "The intention is to enable scholars, officials, and citizens to understand the potential set of variables and their sub-variables that could be causing a problem or creating a benefit. When we have a medical problem, a doctor will ask us a number of initial questions and do some regular measurements. In light of that information, the doctor proceeds down a medical ontology to ask further and more specific questions (or prescribes tests) until a reasonable hypothesis regarding the source of the problem can be found and supported. When we begin to think about a particular problem, we need to begin to think about which

[7] This framework is discussed in more detail in Chapter 5. For empirical applications, see Basurto and Ostrom (2009) and Madrigal et al. (2011).

of the attributes of a particular system are likely to have a major impact on particular patterns of interactions and outcomes."

Others like Charles Ragin have proposed a similar "configurational" view of social research, where cases are understood in terms of causal combinations of set memberships that lead to a given outcome, rather than as relations between individual variables (Basurto, 2007; Ragin, 2000; Ragin et al., 2003; Rihoux and Ragin, 2008; Rudel et al., 2009).

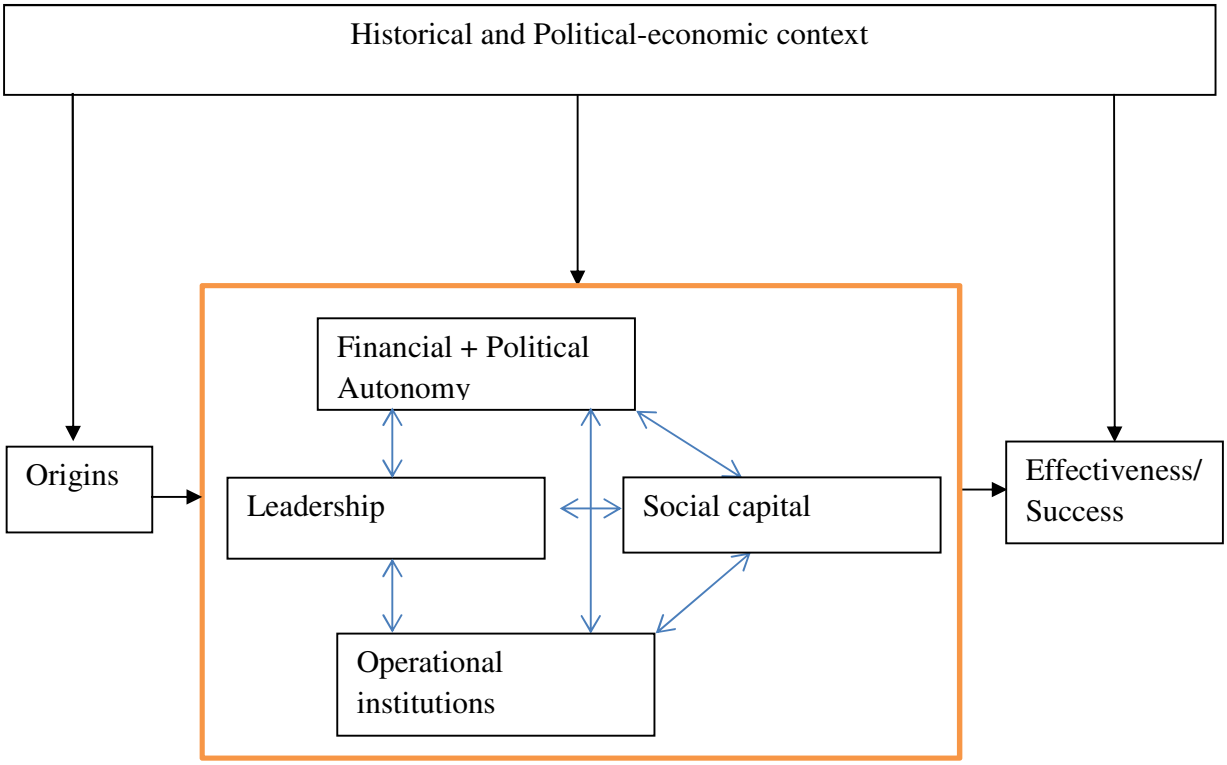
In this dissertation, I use the diagnostic framework, as well as previous scholarship on CPRs and cross-scale governance, as a guide to identify and organize the combination of potentially relevant variables explaining the effectiveness of FAs (question 4). The main focus is on the internal characteristics of these associations (i.e. origins and previous experience, leadership, autonomy, internal institutions, social capital). I also consider the social, political and economic context as an overarching set of variables that influence the independent variables as well as the outcomes of interest (i.e. emergence and sustainment of collective action, benefits to communities, elite capture). **Figure 1.1** provides a model of the expected relationships.

1.2.2. Multi-level/Cross-scale Governance, Polycentricity and Networks

The second insight concerns the role of connections across multiple levels and scales of governance. Recent work has pointed out that more attention needs to be paid to how "cross-scale" or "multi-level" governance can affect local resource management outcomes (Agrawal, 2007; Berkes, 2008; Brondizio et al., 2009). Linkages, also called 'institutional interplays' (Young, 2002), can be defined as "direct interactions through networks to provide information or tangible resources related to the management system." (Adger et al., 2006: 9) In other words,

they are the multiple horizontal and vertical connections between communities and other levels or scales of organization such as government agencies and civil society groups.

Figure 1.1. Conceptual model of factors influencing FAs



The conception of institutions embedded in higher-level institutions is not new. This factor was very present in the work on polycentric governance (McGinnis, 1999; 2011; Ostrom, 2010), particularly the work on metropolitan policing by Ostrom and colleagues. This work incorporated multiple units of analysis and showed that government service provision often requires inter-connected organization across levels and scales; some services like patrolling where more effectively provided by small, local administrative units, while others, like forensic research, required larger, regional units. The multi-level/cross-scale concept was also present in

two of Ostrom's (1990) design principles for sustainable resource governance: "minimum recognition of rights", and "nested enterprises". The former stated that "external government agencies do not challenge the right of local users to create their own institutions." (Cox et al., 2010: 48). In other words, the principle is a requirement for local decision-making autonomy. The "nested enterprises" principle, in turn, considered whether "governance activities are organized in multiple layers of nested enterprises" (Ostrom 1990: 90; see also Brondizio et al., 2009; Cox et al., 2010). A recent review of Ostrom's work (Cox et al., 2010) found moderate support for both principles. In the development scholarship, Brown (1991: 1) similarly emphasized the importance of "horizontal linkages across sectors, and vertical linkages that enable grassroots influence on national policy-making". He and others (e.g. Bebbington, 1996) further argued that "bridging organizations" and inter-community associations could play key roles in creating these linkages. Network scholars have similarly emphasized the importance of horizontal and vertical connections. Many of these scholars, however, have focused on networks of individuals (see e.g. Bodin and Crona, 2009; Carlsson and Sandstrom, 2008; Janssen et al., 2006 for applications in CPR studies); those focusing on networks between *organizations* (e.g. Agranoff, 2006; Benjamin et al., 2011; Knoke, 1998; Wilshusen and Murguía, 2003) are more relevant for this study.

The work on cross-scale linkages remains underdeveloped. There is a need to measure the effects of these linkages and understand why they have different effects across space and time – that is, what are the factors that make cross-scale linkages more or less effective. Agrawal (2007; see also Berkes, 2008) posits that we need to ask how do processes at multiple social and institutional levels interact with each other to generate outcomes relevant to forest governance. This is precisely one of the main focuses of this dissertation project: how connections between

communities (organized in FAs) as well as connections between FAs and other actors (government agencies, NGOs, technical service providers, etc.) make a difference for local-level resource governance outcomes –not only ecological but also social and economic (research question 2).

These issues are not only relevant for CPR scholars. They tie into longstanding concerns in political science and public administration on how to best organize government for effective attainment of different goals (e.g. provision of a service, alleviation of poverty and generation of grassroots economic opportunities, sustained protection of natural resources). Considering connections across scale also leads us to take into account the role of the government agencies (sometimes referred to as the 'State' –see Agrawal, 2001, Anthony and Campbell, 2011) that relate to communities in a given context –in this case, forest management and rural development. The appropriate role for government –and consequently of civil society– has been one of the most contentious issues in social sciences (Ostrom, 2005), and is one which CPR scholars have constantly had to address. The role of civil society organizations and networks –such as FAs– has also been a central concern of development and public administration scholars. For instance, Stone (1989; 1993), thinking about how cities were governed, argued that governance capacity was not easily controlled through the electoral system but that it was 'created and maintained by creating coalitions with governmental and nongovernmental partners with appropriate resources.

1.2.3. Political economy of linkages

Approximately ten years ago, several reviews of the CPR scholarship identified the role of supra-community (external) factors –including the role of FAs, social movements, NGOs, the state, and market forces– as one of the key understudied topics in CPR studies (Agrawal, 2001;

Stern et al., 2002). One of the main criticisms of this scholarship was then, as it is today, its inattention to these issues (Agrawal, 2001; Armitage, 2008; Bermeo, 2010; Clement, 2010; Cox et al., 2010; Poteete et al., 2010; Rudel, 2011). In a recent paper, Rudel (2011), drawing on scholarship from sociology, argues that a country's economic and political development – including factors like the strength of the state, the level of national social capital, globalization and business cycles– can have significant effects on local collective action by influencing the 'design principles' proposed by Ostrom (1990). The issue of power, intricately related to political-economic conditions, has also been understudied (García-López, 2009; Clement, 2010; Kashwan, 2011). A focus on these issues will help me answer the question of how FAs emerge and evolve as well as how and why internal governance becomes captured by certain groups (questions 1, 3, 4).

Political ecology emerged as a field in the 1980s precisely to study these problems (e.g. Blaikie, 1985; Blaikie and Brookfield, 1987; Hecht, 1985; for reviews see Bryant, 1998; Peet and Watts, 1996; Robbins, 2012). These scholars sought to redefine ecological problems –usually blamed on local resource users– as the outcomes of macro-level or 'structural' political-economic factors associated with the global expansion of market economies. As with CPR scholars, they drew on anthropological research showing communities' ability to organize and devise local institutions to manage resources collectively. Yet they had a much more bleak perspective on the generalizability of these experiences, pointing to the constraining effects of macro-level economic and political conditions (e.g. governments seeking to extract rents or votes, large corporate interests, macro-economic crises) and to unequal power relations within communities and between communities and external actors. The focus tended to be not so much on local successes and their characteristics, but on how governments and corporations oppressed

communities and prevented local autonomy in resource management (e.g. Peluso, 1992). At the same time, political ecology scholars have emphasized on the struggles through which communities and their allies can defend their autonomy and the resources on which they depend for their subsistence, or promote changes in undesirable national institutions (e.g. Bebbington et al., 2008; Berkes, 2006, Goldman, 1998; Martínez-Alier, 2002; Peet and Watts, 1996; Peluso, 1992). This research tradition addressed an important question left unanswered by the "minimal recognition" principle: how users gain decision-making autonomy in the first place. The focus on how autonomy is achieved is consistent with my proposed model of the emergence and evolution of cross-scale arrangements as partly resulting from political contests between grassroots and top-down collective action processes.

The focus on regional processes such as land degradation, as well as regional forms of organization, have accompanied political ecology from its beginnings (Birkenholtz, 2011; Dove and Hudayana, 2008; Walker, 2003). This requires paying particular attention to the "importance of local-scale social dynamics while situating these dynamics within broader scales of regional processes" (Walker, 2003: 7). These regional processes are in turn nested into higher-scale processes, representing "scalar hierarchies" (see Blaikie and Brookfield, 1987). This regional approach has recently been combined with network theory to provide useful insights on how the horizontal and vertical connections between actors influence regional socio-ecological change (see Birkenholtz, 2011). This regional approach is very compatible with the focus on cross-scale governance embedded in macro-level political-economic processes employed here.

The issue of power has been another central concern in the political ecology tradition. From this perspective, unequal power relations exist between communities and external actors, and also within communities and across communities. The focus is on the politics of resource

management –"the practices and processes through which power, in its multiple forms, is wielded and negotiated" (Paulson et al., 2003: 209)– and its effects on access to and control over natural resources. There is now a substantial body of research looking at the effects of power inequalities on institutions and natural resource governance (e.g. Agrawal and Gupta, 2005; Crona and Bodin, 2010; Engel and Palmer, 2006; Kashwan, 2011; Lund and Lund, 2005; Nayak and Berkes, 2008; Peluso, 1992; Perez-Cirera and Lovett, 2006; Sikor and Lund, 2009; Brechin et al., 2003).

The perspective of power predominant in most political ecology research has been that of power *over*, i.e. the coercive forms of power. The collective action tradition, on the contrary, has mostly emphasized power *to* –the ability to use power to do things, e.g. to develop institutions and enforce them) (for a review of this distinction, see Raik et al., 2008). Both perspectives are needed to fully understand collective action in CPR settings. Agency and social structure have a "dialectical relationship"– social structures shape individuals' practices but are also shaped by the individuals (Wilshusen, 2003). This is consistent with the "the three dimensions of power" model (Lukes, 1974; Gaventa, 1980) that considers the power of A to make B do something, the power of A to control the agenda (Bachrach and Baratz, 1962; Stone, 1988), and the power of A to influence ideas and discourses. The second dimension can be extended to include how institutions create benefit for some groups at the expense of others (Bachrach and Baratz, 1970; Moe, 2005; Steinmo et al., 1992; Thelen, 1999). Concerns about power relations are deeply engrained into this dissertation as a whole, although they are clearest in Chapter 4.

Elite capture of local institutions has been a related concern in political economy work, and has evident parallels to the work on power. This literature has mostly looked at how powerful local-level actors can disproportionately capture resources. Yet if elite capture happens at the

local level, then we may also expect it to happen at the regional level of cross-scale governance. Most initial work of decentralization –a policy closely related to cross-scale governance– touted it as a strategy to disperse power, crucial to the projects of 'democratization' and 'new governance' in developing countries. However, in summarizing the empirical studies of decentralization, Bartley et al. (2008: 163) conclude: "In a variety of locations, decentralization reforms in the forestry sector have been plagued by contradiction, ambiguity, and perverse incentives." (see also Poteete and Ribot, 2011; Ribot et al., 2006) This suggests that we need to pay more attention to power to better understand governance arrangements and their outcomes. Adger et al. (2005: 15), explore these issues through a "political economy of cross-scale linkages" framework that analyzes "how decisions are negotiated, how tradeoffs are made…and how other actors are enrolled on a cause."

Finally, the 'weight of history', a concern that political ecologists share with historical and sociological institutionalists, also informs this work. Institutions reflect previous collective action experiences –cooperative and conflictive– that remain embedded and are hard to change (Frechette and Lewis, 2011; Kashwan, 2011; Pierson, 2000; 2003). The work on post-socialist countries has highlighted how clientelist networks persist even after a change in formal regime (e.g. Ledeneva, 2006). In this case, I focus on the persistence of historical social relations and *practices* of peasant organization *vis-à-vis* the state and political parties, specifically clientelism, corporatism and *caciquismo*. These practices are a crucial part of the context that needs to be considered, as it influences all of the independent and dependent variables of interest. Clientelism is here defined as "offering, promising, giving and managing in exchange of political fidelity" (Flores and Rello, 2002). *Caciquismo* is the practice of promoting authoritarian political bosses to lead peasant organizations and rural communities (Knight, 1998); while corporatism

refers to a 'system of representation of professional interests' where individuals from a given sector (e.g. agriculture) are coalesced into one organization based on the position of the individuals in the production process (e.g. peasants in agriculture) (Schmitter, 1974). The case of Durango is an illuminating example of all these practices because, contrary to other states like Oaxaca where communities had a long history of autonomous governance since before the Spanish conquest, and have more or less maintained that autonomy (often through very visible struggles) from the State, in Durango forest communities emerged from the womb of the post-revolutionary state-party apparatus.

Yet historical path dependence and lock-in may not be all –the role of social conflicts, power relations, and the interactions between actors in the political arena, including the State– may be useful to better understand persistent patterns of inefficiency. Within policy punctuations there can be many incremental changes characterized by constant conflicts and adaptations (Peters et al., 2005). This is consistent with the approach described above that looks at social structures as mutually constituted by human agency (collective action) rather than as pre-determined, and as evolving rather than permanent.

1.3. Research questions and hypotheses

To analyze the questions posed above,[8] I proposed the following hypotheses, numerically labeled to coincide with the questions:

- *H1: FAs emerge as a combined response to macro-level and micro-level factors, specifically: communities' needs to solve collective problems and openings in macro-level political-*

[8] To recap, the questions are: (1) What factors lead to the formation of FAs?; (2) how do these networks contribute to community forestry?; (3) how do top-down FAs differ from bottom-up/grassroots ones in terms of their services and benefits to member communities?; and (4) how do these differences affect FAs' effectiveness in positively influencing community forestry?

economic conditions. Functionalist interpretations have focused on the emergence of institutions as solutions to collective dilemmas by autonomous actors (e.g. cross-boundary environmental problems like water conflicts, market access, information sharing, political representation). Alternative explanations include changes in political opportunity structures, a concept developed by social movement scholars to explain movement emergence; and political strategies of re-scaling, discussed by geographers in relation to State strategies of maintaining political control over populations and resources.

- *H2: FAs provide three types of benefits to members– political empowerment, socioeconomic development, and improvements in forest conditions.* FAs will contribute to empowering communities by providing political representation. They will improve socio-economic conditions by channeling resources from government and non-government sources and organizing their own regional enterprises. And they will improve forest conditions by coordinating management activities (e.g. fire combat, reforestation, monitoring) and providing technical capacity-building and forestry services at the regional level. Two corollaries derive from this hypothesis.
    - *H2a: Communities in FAs will have better political, socio-economic and forest conditions than before they joined the associations.*
    - *H2b: Communities in FAs will have more benefits than those outside these associations*.
- *H3: Bottom-up and top-down FAs will have significant differences in their services and benefits.* There is substantial research showing the differences between bottom-up and top-down governance efforts. Bottom-up efforts have been found to lead to better forest conditions and activities more closely in line with communities' own needs and aspirations. Two corollaries derive from this hypothesis.

- *H3.a: Compared to top-down FAs, bottom-up FAs will have a stronger focus and higher benefits on issues related to strengthening local organization and institutions; increasing market power of communities and providing economies of scale in the timber market*; *and providing political voice and representation.*
- *H3.b: Top-down FAs will have a stronger focus on activities related to forest management, political/clientelist activities, and elite capture.* They *will have higher levels of benefits in forest management and higher levels of elite capture.*

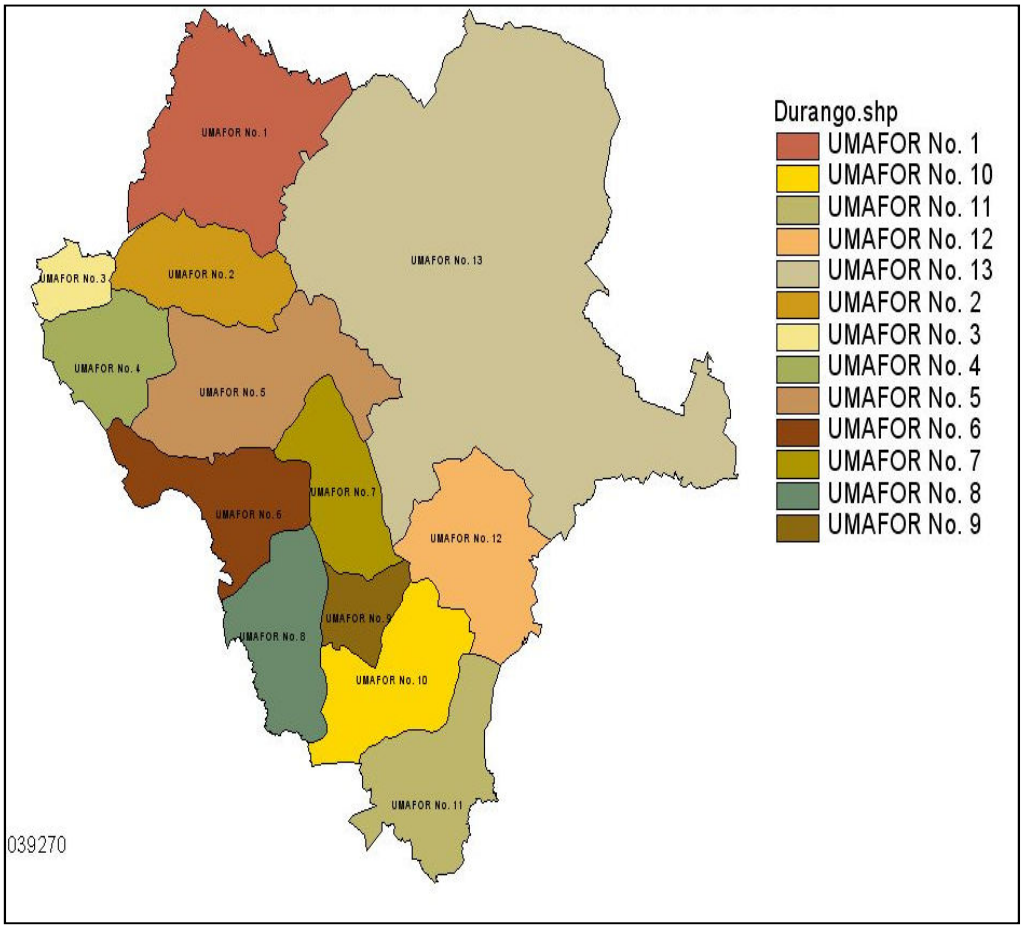
- *H4: The most effective FAs will be those with a combination of the following factors: grassroots origins and previous collective action experience, strong leadership, significant financial and political autonomy, strong institutions, and high social capital*. These factors draw on E. Ostrom's (1990) design principles as well as her more recent diagnostic framework. All of them have been recurrently identified as important for different measures of the success of collective action, including the sustainability of collective action itself and of development and resource management outcomes. Five corollaries derive from this hypothesis.
  - *H4.a*: *FAs with grassroots origins and previous collective action experience will be more effective than those with top-down origins*
  - *H4.b: FAs with strong leadership will be more effective than those with weak leadership*
  - *H4.c: FAs with significant financial and political autonomy will be more effective than those with weak financial and political autonomy*
  - *H4.d: FAs with strong institutions will be more effective than those with weak institutions*
  - *H4.e: FAs with high levels of social capital will be more effective than those with low levels*

1.4. Research Design

As stated above, the central goal of this research is to better understand cross-scale governance through the example of inter-community networks (FAs) in the community forestry sector in Durango, Mexico (see **Figure 1.2**). Specifically, I look at how and why they emerge and evolve over time (Chapter 2); what impacts different types of FAs have at the local (community) level (Chapter 3); their internal governance (institutions and power) and how these affect "elite capture" (Chapter 4); and the different factors that influence FAs' effectiveness (Chapter 5).

In this section, I explain the overall methodological approach followed, the sampling procedure and the data gathering employed, and how they fit into my research goals and questions. Two considerations serve as general guidance for the research design. First, a multi-level/cross-scale/network approach requires understanding not only network impacts but their internal governance (Benjamin et al., 2011). As stated by Berkes (2006: 56): "…when multiple levels are involved, the emphasis of the inquiry should shift from the question of scaling-up to understanding linkages, their nature, and dynamics." This implies that we need to look inside the linkages –in this case inside the FAs– to understand how and why the linkages form and change over time, how they are governed (e.g. who makes rules, who enforces them, how are benefits distributed), what do the linkages do (what are their activities), how people perceive the linkages, and how people relate to each other. Second, the focus on political economy implies that we need to look not only at the 'rules of the game' (i.e. the institutions) but also the 'players of the game' and how they are socially intertwined within relations determined not only by institutions but by other historical and current political-economic factors, and within unequal relationships (Sick, 2008).

Figure 1.2 Durango and its Forest Management Regions (UMAFORs)



Source: SRNyMA (2006) and UPUCODEFO4 (2008)

Note: The UMAFOR numbers used below (Sect. 1.5.4) do not correspond to the real UMAFOR numbers seen here.

1.4.1. Overarching methodological framework

The research design and methodology employed in this dissertation is based on the comparative case study approach, often referred to as both a research design and a method (see Gerring, 2007). This approach based on "structured, focused comparison" –structured in the sense that the researcher writes general questions that reflect research objective, that are asked across cases to guide and standardize the data collection; and focused in that it deals only with *certain* aspects of the cases analyzed (George and Bennett, 2005; also Gerring, 2007). In other words, case study analyses entail the systematic collection of the same information across carefully selected units, combined with theoretically-guided questions, in order to obtain "systematic description" which can serve for causal inference (George and Bennett, 2005; see also McAdam and Tarrow, 2011).[9] The case study method has four main advantages relative to statistical analysis (George and Bennett, 2005): (1) achieving high "conceptual validity", i.e. to identify and measure the indicators that best represent the underlying theoretical concepts through contextualization of the concepts;[10] (2) identifying new hypotheses and variables; (3) close examination of causal mechanisms in individual cases; and (4) capacity for addressing causal complexity, where different combinations of variables or paths can produce the same outcome ("equifinality"), or the same path can produce different outcomes ("multifinality") (George and Bennett, 2005; Ragin, 2000).

Causal mechanisms are a key element of this comparative method (Stinchcombe, 2005; George and Bennett, 2005). These are defined as independent stable factors that under certain

[9] Note that the 'case study method' is also an umbrella of different qualitative methods, including participant observation, surveys, interviews and archival research. Here I employ all of those to different extents.
[10] This reduces the problem of "conceptual stretching" common in statistical methods, where the operationalization employed in one context –say the definition of organizational autonomy– is transposed to another context.

conditions link causes to effects.[11] This contrasts with statistical methods, which focus on "causal effects", i.e. the numerical impact of an independent variable (cause) on a dependent variable (effect/outcome). Causal mechanisms are crucial to causal inference, i.e. for making statements about how 'what causes what, when and how' (George and Bennett, 2005; Brady, 2004). The focus on causal mechanisms allows for the exploration of a large number of intervening variables and their relationships, and to observe unexpected outcomes. It also helps deal with the problem of causal complexity. This distinction is crucial for understanding causal complexity. Some have argued that causal effects logically precede causal mechanisms (King et al., 1994), but it is not clear that this is so (Brady, 2004). In statistical (correlation) analysis, complex causality is very hard to account for – actually it is usually assumed away. Linearity is the norm. When complex "interaction effects" are taken into account, they require massive samples to offset the problem of collinearity (Ragin, 2004). Thus, statistical analysis often discards the outliers as part of the error term or as part of unaccounted-for variables, instead providing 'mean' (average) values of the impact of a given variable on an outcome. Of course, the researcher may include more variables to improve the explanation, but this may not be advisable on statistical terms (e.g. Achen, 2002, 2005; Kennedy, 2003), and in any case, it omits the fact that there may be many causal processes/mechanisms leading to the same outcome.

Causal mechanisms are usually studied through the technique of "process tracing" (George and Bennett, 2005; McAdam and Tarrow, 2011). The technique involves tracing " "the links between possible causes and observed outcomes" by examining "histories, archival documents, interview transcripts, and other sources to see whether the causal process that a theory hypothesizes or implies in a case is in fact evident in the sequence or values of the intervening

[11] The definition of causal mechanisms, as a relatively new concept, is subject to debate. Mahoney (2001, cited in McAdam and Tarrow, 2011) documented 24 different definitions.

variables in that case" (George and Bennett, 2005: 6). By carefully analyzing this sequence of events, or "what follows what", participants and their connections, scholars can provide explanations for an outcome or relationship (George and Bennett 2005: 207; also McAdam and Tarrow, 2011). It allows researchers to *connect* the phases of a policy/decision process and to identify the reasons for the emergence of a particular decision through the dynamic if events (Tarrow, 2004). The analysis of the sequence of events needs to be combines with a careful evaluation of the causal mechanisms at play, i.e. "delimited changes that alter relations among specified sets of elements in identical or closely similar ways over a variety of situations." (McAdam and Tarrow, 2011: 3) In this dissertation, process tracing will allow me to identify when, how, why and by whom each FA was formed, when, and how, why and by whom they are captured. It will also allow me to identify the specific causal processes that link combinations of potential causal factors (e.g. FA leadership, autonomy, social capital) and observed outcomes (e.g. FA level of success).

While most of the information gathered is from the case study approach I also take advantage of statistical techniques as a complementary source of insights, particularly in Chapter 2. Specifically, I draw on a random stratified sample of forty-one (41) communities from Durango and Michoacán (see Antinori and Rausser, 2010) to provide descriptive statistics of the different FAs identified in the sample and calculate basic correlations between factors such as the date of formation, the type of FA (bottom-up vs. top-down), and the type of services provided.

1.4.2. Unit of analysis and sampling

The central unit of analysis for my study is inter-community forest associations (FAs). These are the networks that I compare and contrast in terms of their impacts, effectiveness and

internal governance. While initially the idea was to compare a few FA communities (members of an FA) and non-FA communities from four different regions in Durango, the plan evolved during the fieldwork due to two factors: the realization that in some regions all forest communities were formally integrated into an FA, that there was substantial variation of conditions across FA members (thus making comparisons with non-FA members very difficult), and that these comparisons (and the time spent doing them) would not contribute much knowledge to FAs' internal governance. As already explained, I still have maintained the concept of a comparison between members and non-members but in a much less central way. However, as this is a multi-level study trying to determine the connections between FAs, communities and other actors, I necessarily shift across levels to observe different aspects. Thus, I have gathered data for individual communities within each association and it is from those communities from which I primarily derive information about the main issues addressed.[12]

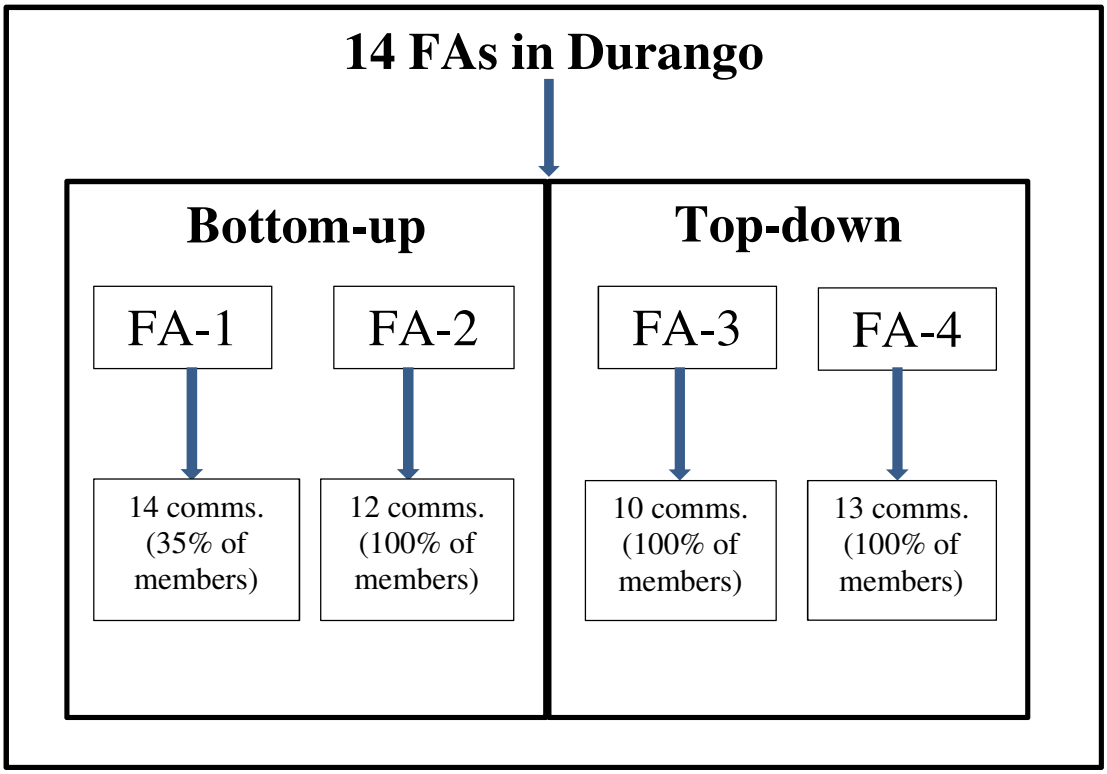
The four FAs in the study were chosen from a group of 14 Durango FAs represented in a random stratified sample of 41 communities from Durango (28 communities) and Michoacán (13). This sample was designed for a survey of community forestry in which I participated in 2007 (see Antinori and Rausser, 2010). The survey included questions about FAs including their origins, membership, and activities. It identified 14 associations in Durango. Based on the information available, I selected two grassroots/bottom-up (created and controlled by communities), and two top-down (created and controlled by external actors) for further analysis of the questions central to this dissertation. Information from the database was used to attempt to control for group size as well as location. Within each FA, I then sampled different member communities. In this sense, the sample was nested –a sample within a sample– (see Poteete et al.,

[12] I also have information from external observers (foresters, government officials), internal FA foresters, and FA leaders, but these are secondary and serve mostly to triangulate the information obtained from the communities. See below.

2010) but also purposeful –selected based on a given variable and comparative intent (see Gerring, 2007).

In FA-2, FA-3 and FA-4, I sampled all the member communities –12, 10 and 13 respectively. This could be described as a complete sample. In the case of FA-1, sampling of all member communities (40) would have been impossible given time and financial constraints. Therefore, I did a "convenience" of a similar number of communities than those sampled in the other three associations (14). **Figure 1.3** shows this sampling strategy.

Figure 1.3 Sampling strategy



1.4.3. Data gathering methods

Data gathering employed a combination of survey techniques (from the 2007 project with C. Antinori), in-depth interviews, focus group discussions, and participant observation. I spent one year in the field between January 2010 and January 2011, with a return visit September-October 2011. Approximately three and a half months were devoted to each FA, though this necessarily varied. The full list of data-gathering activities carried out is detailed in **Table 1.1**.

Table 1.1. Activities carried out in the field

Level	Interviews	Participant obs.	Focus groups	Qty.*
National	National CONAFOR officials			2
		CONAFOR meetings		1
	Civil society**			4
State	State and federal officials			16 [13]
	Civil society			4 [14]
	Forest industry			3
	State-level FA leaders			1
		State-level FA assemblies		10
		Forest agency meetings		6 [15]
		Other forest sector activities		6
Regional (sub-state)	FA leaders and ex-leaders			45 [16]
	Foresters			33 [17]
		FA assemblies		8 [18]
		Other FA activities		2

[13] 9 CONAFOR, 5 SRNyMA, 1 SAGDR, 1 CADER03-Durango
[14] 2 with foresters, 2 NGOs
[15] 4 in FA-1, 1 in FA-3, 1 in FA-4 region
[16] 15 in FA-1, 10 in FA-2, 8 in FA-3, 12 in FA-4
[17] 9 in FA-1, 3 in FA-2, 10 in FA-3, 8 in FA-4, 1 in FA-X(U4), 2 in FA-X(LF)
[18] 2 in FA-2, 1 in FA-3, 2 in FA-4

Level	Interviews	Participant obs.	Focus groups	Qty.*
Local	Community leaders			59 [19]
	Other community members			39 [20]
	Local government officials			5 [21]
			Governmental agency meetings	1
		Community assemblies and focus groups		25 [22]

* Some people were interviewed more than once
** Civil society includes NGOs, academics and foresters

My overall data-gathering approach was inspired by ethnographic methods, and more specifically by what has been labeled *political ethnography.* Broadly defined, ethnography is a fieldwork-based approach characterized by "prolonged exposure" and "immersion" in the social life of a given group, which is the object of study (Kubik, 2009; Schatz, 2009). The main method employed by ethnography is participant observation, i.e. immersion, though ethnographers also rely on other related methods, particularly in-depth interviews and focus groups (ibid). The question of whether a given research project is ethnographic is open to debate leading Kubik (2009) to distinguish between ethnographic research and research with an ethnographic sensibility. In this dissertation, participant observation is used as a more secondary tool, but one that yields valuable insights, and thus it is more accurate to chareacterize it as having an "ethnographic sensibility".

Ethnography can be a very useful tool to build in-depth understanding of causal processes. As Tilly (2006: 410) argues, if one believes that "*how* things happen is *why* they happen [i.e. causal processes/mechanisms], then ethnography has great advantages over most other

[19] 17 in FA-1, 17 in FA-2, 13 in FA-3, 12 in FA-4
[20] 7 in FA-1, 14 in FA-2, 11 in FA-3, 7 in FA-4
[21] 2 in FA-1, 2 in FA-2, 1 in FA-4
[22] 4 in FA-1, 6 in FA-2, 6 in FA-3, 8 in FA-4, 1 in FA-X(LF),

conventional social scientific methods as a way of getting at cause-effect relations." While most methods depend on correlations and comparative statics (measuring the conditions under which processes occurs or the outcomes that correlate with them), ethnography requires that the analyst look carefully at the social processes as they unfold –in other words, ethnography focuses on how a given cause generates certain outcomes, and does so from a comparative perspective that recognizes causal complexity.

While ethnography has contributed substantially to the study of politics, it has tended to be marginalized in social sciences other than anthropology (Schatz, 2009). Recent years have witnessed a renewed attention to the topic of ethnography in politics (Auyero, 2006; Baiochi and Connor, 2008), with two recent books (Joseph et al., 2007; Schatz, 2009). "Political ethnography", argues Tilly (2006: 410), provides privileged access to politics –the "dynamic, contingent interaction among persons, households, and small groups…in which at least one government participates as actor, object, and/or influential third party", because it "brings field workers into direct contact with political processes instead of filtering that knowledge through other people's testimony, written records, and artifacts of political interaction." (see also Schatz, 2009) Similarly, Kubik (2009) posits that ethnography can help unearth the multiple layers of formal and informal power structures, which is what I attempt to do in one of the chapters (Chapter 4).

While the ethnographic approach served as inspiration, I triangulated participant observation with other sources including in-depth interviews with multiple stakeholoders, focus group discussions, and archival research (see **Table 1.1** above). Quasi-open ended interviews were carried out with FA leaders (members of the elected governing board), FA foresters, and other FA members (community representatives, advisors); community leaders; federal, state and

local government officials; external foresters, and other civil society actors (e.g. NGO representatives). Group discussions were held with community members, often as part of general assembly meetings. Except for a few interviews with external actors which were tape-recorded, all interviews and discussions were carried out with a notebook/notepad and pen. This was done consciously because of the tendency of distrust towards external actors and unease with tape-recording initially found in the field.

Interviews and focus groups at the community level helped illuminate the major challenges communities face; their reasons for forming or eventually joining an FA, or for not participating in one; the nature and extent of their involvement in these organizations (including the forms of participation and accountability); the actual services they receive from them; and the *perceptions* of community members about key issues related to FAs, including the quality of these services, the types and level of benefits, the associations' strengths and weaknesses, and their overall relevance and effectiveness (for a similar application, see Britt, 2002). The interviews also included questions about other local factors related to community forestry outcomes, including community institutions and decision-making, forest use, local leadership, and perceived forest quality. **Appendix 1** provides the questionnaires used as guides for the different stakeholders. How closely the interview followed the script of the questionnaire depended on the interviewee's knowledge about particular issues of interest.

Oral histories about each FA gathered through the interviews were used to understand how communities' political empowerment, socioeconomic development, and forest conditions have changed over time, and whether FAs had a role to play in these changes. It is important to note that I do not have 'hard' data over time in terms of the characteristics of communities before and after joining an FA. Thus, in trying to understand how FAs have historically influenced forest

communities, I relied primarily on these oral histories and, when available, archival documentation from associations themselves. This "recall" technique has its limitations (e.g. Bernard et al., 1984; Ricci et al., 1995), but short of doing extensive archival research, it was the only realistic technique at my disposal.

Interviews at the FA level focused on each association's origins and history, current internal characteristics (rules, size, resources and infrastructure, staff, leadership); main goals and activities related to community forestry; main projects and other achievements to date; perceived strengths and weaknesses; and relationship to the federal, state and local governments, political parties, foresters, other FAs and civil society organizations, and the private timber sector. To determine the political connections of different actors in the FAs –and particularly clientelist and *caciques* (political bosses) ties– and their influence on internal governance, I used questions inspired by network analysis and power studies. These questions helped me determine how different actors are positioned or embedded in a network, the type of interactions between them, and the distributions of power, as has been done through questionnaires (e.g. Knoke et al., 1996; Kriesi et al., 2006), analyses of decision-making in governance networks using the actor-process-event scheme (APES) (Vogeli et al., 2006), or "membership network analysis" (Breiger, 1974, cited in Domhoff, 2007). To better understand power relations, I combined those questions with others inspired by "content analysis" (see Domhoff, 2007) that seek to measure the power and benefits of certain actors by asking who participates in decision-making arenas, who wins or receives the most benefits, and who is perceived by peers as having power.

Interviews were complemented with focus group discussions and participant observation of community and FA assemblies and other activities. Participant observation allowed me to gain a better grasp of the process of information-sharing, debate, participation, decision-making, and

leadership within each FA, and the relations between FA actors and other stakeholders. For instance, by assisting to meetings of the state-level association, I was able to observe the predominant role of foresters in the FAs, and the close relationship between the state government and these associations. And by participating in political events like meetings of the 'forest sector' with the PRI candidate for governor, I was able to ascertain the close ties between most FA leaders and this party, which had previously been suggested in multiple interviews.

I also carried out thematic interviews with informants representing the interests of other key stakeholders –including representatives from other FAs, external foresters, and government officials from the federal and state forestry and environmental agencies– which offered an outsider's perspective on these organizations and a better understanding of how relations between different actors affect FAs' operations. Finally, I conducted archival research of FA documents –including previous studies conducted in each of the four regions– government reports, and newspaper articles, among others.

The data was coded into pre-defined categories as it was transcribed from my hand notes into my computer. These categories (established in the interview guides in **Appendix 1**) included things like "FA history", "impacts/benefits", "Leadership", and "other associations/networks". As the fieldwork evolved, new categories were added. This data was then organized into a series of descriptive documents for each of the associations for the important themes of the dissertation: history, services and benefits, internal organization, leadership, autonomy, and strengths and weaknesses. Keyword searches were used to gather the information on each topic. These descriptive documents later served as a source of information on each topic, though going back again to the original interviews was sometimes required.

1.4.4. Data analysis

The analysis in this dissertation draws on the multiple sources and methods described above. Chapter 2 uses historical analysis based on interviews and archival sources to document the reasons behind the formation of different cross-scale linkages. Process tracing helps to understand how macro-level processes –changes in national institutions and socio-political and economic conditions– were related to the observed outcome. This is complemented with quantitative analysis derived the abovementioned survey of 41 communities in Durango and Michoacán (Antinori and Rausser, 2010). Principal component analysis was used to determine the main types of services provided by different associations in the sample, and binary correlation analysis was used to determine the relationship between the form of origin (top-down versus bottom-up) of the FA and the types of services it provides, the date of formation (historical period), and the existence of previous experiences of collective action.

The analysis of FA services and benefits in Chapter 3 draws on the interviews with FA leaders, community leaders and other community members in each association, as well as external observers, to derive categories of types of services. These are then quantified according to the percentage of member communities that stated benefits in each category, per association. Other indicators of impact –more directly tied to measurable community-level outcomes– are also derived from communities' perceived changes in timber stock and in the number of forest fires,[23] the level of vertical integration and of diversification of forest, and the extent of certification of sustainable forestry among member communities. Perceptions about timber stock and forest fires were used as measures of ecological outcomes as a cost-effective way of obtaining indications of forest ecosystem conditions from those who are closest and interact the most with them. Perceptions have been recognized as a cost-effective method to measure

[23] This is still based on community perceptions, but it is more tied to a community outcome.

ecological conditions (Anadón et al., 2009; Danielsen et al., 2005). To the extent possible, I triangulated this information with insights from foresters and others. Hard data on deforestation and forest firest for the specific areas covered by each FA was not readily available, and would have required susbtantial amount of time and effort to develop. What was available was data for the four UMAFORs where the FAs operate (FAs do not cover their entire UMAFORs), which I present below in Section 1.5.

In Chapter 4, I draw on institutional analysis to identify key rules related to the process of elite capture. Power, in turn, is analyzed based on the questions identified in the previous section (1.4.3). Drawing on interview with different stakeholders, participant observation and archival research, I identify the level of elite capture in each of the four associations based on the oral histories of each association and responses to questions related to autonomy, leadership, relations to other stakeholders, and organizational strengths and weaknesses. I then use process tracing to identify the key causal mechanisms through which power and institutions combine to influence elite capture.

Finally, to analyze how different factors influence FA effectiveness (Chapter 5), I follow Ostrom's (2007, 2009) diagnostic framework and draw inspiration (though do not apply it directly) on the methodology of Qualitative Comparative Analysis (QCA) (Ragin, 2000; Ragin et al., 2003). QCA focuses on the presence or absence of particular variables of interest and the ways these variables combine in different ways to produce a given outcome of interest (in this case, 'FA effectiveness') across cases. In other words, what is compared and contrasted are not relations between individual variables, but the different *configurations of causal conditions* that lead to the outcome.

1.5. An introduction to the context: Mexico, Durango and the four regions

Common-pool resource governance is embedded in micro- and macro-level contexts which affect actors' participation in collective action (Poteete et al., 2010). Here, I provide an overview of the national legal, economic and policy context in which Mexico's community forestry sector operates. In the following section (1.5.2), I explain the formal community and inter-community institutions that shape collective action at the local level. I then move to describe the state of Durango (1.5.3) and the four regions (1.5.4) covered in this study.

1.5.1. National institutions

The Mexican federal government oversees forest activities through three main agencies: the Environment and Natural Resources Secretariat (SEMARNAT), and two decentralized organizations which are within SEMARNAT –the National Forest Commission (CONAFOR), and the Federal Environmental Protection Attorney's Office (PROFEPA) (see Merino, 2011).[24] SEMARNAT's role is regulating the sector: it awards and oversees permit applications for forestry activities. CONAFOR is in charge of the promotion and development of forestry activities, and to that end handles all programs related to sector. CONAFOR has a national office which establishes the programs and their rules of operation, and also has state-level offices which make decisions on most of these programs (a few are handled at the national level). Mexican scholars and practicioners have often criticized the poor coordination between both agencies; for instance, about 30% of all forest management plans financed by CONAFOR are rejected by SEMARNAT (Merino, pers. com., 07-04-2012). Finally, PROFEPA is in charge of monitoring and enforcement. It carries out inspections, investigations and helps organie

[24] Other Secretariats have roles to play in forest communities, particularly those related to natural protected areas (CONANP), biodiversity (CONABIO), water (CONAGUA), agrarian issues (SAGARPA, SRA), indigenous issues (CDI, previously INE), and social development issues (SEDESOL).

community and regional forest protection committees. Each state also has its own environmental agencies.

Within this organizational framework, Mexican forest policy has varied widely throughout modern times, with eight different forestry laws since the 1917 Constitution –in 1926, 1942, 1947, 1960, 1986, 1992, 1997, and 2003. Alternating between supporting peasants in forest communities and supporting private logging companies (Collier, 1987, in Haenn, 2005; Klooster, 2003), this history, particularly over the last 20 year, has been characterized as erratic (Klooster, 2003), unstable (Bray et al., 2006), inconsistent (CCMSS, 2007a), and cyclical (Collier, ibid). In Chapter 2, I provide a historical overview of how this context has evolved over time and how it has affected the emergence and evolution of FAs.

Any landowner wishing to do any timber or non-timber harvest (*aprovechamiento*) must contract a certified professional forester to design a management plan, which then must be submitted to the SEMARNAT for approval. Plans for commercial wood cutting in temperate dry forests of northern Mexico are usually for 10-12 years. According to the 2003 forest law (LGDFS, 2003, Art. 37), each Management Plan must present a body of basic information including the cutting cycle, the method for conducting the forest inventory, the amount of wood cut in each minimum management unit, and activities related to stand improvement, treatment, reforestation, as well as to the prevention, control, and combat of forest fires, plagues and diseases. They must also produce periodic reports on the implementation of the plan and request permission from SEMARNAT for any modifications. They must also carry out bookkeeping during the extraction process. In this way, while communities own the land and have the right to extract and benefit from the resource, the central government retains substantial regulatory

authority, in a system that could be characterized as between community-based and co-management.

The federal government (and to a much less extent the state governments) provides financial and technical support to forest communities and FAs. Currently, most of the supports are grouped into the PROARBOL ('Pro-Tree') program. PROARBOL includes two broad categories: "forestry development" (previously PRODEFOR) and "conservation and restoration" (see Merino, 2011). The first includes the sub-categories of forest management studies, silviculture (e.g. roads, technological improvements, wildlife management), certification processes (e.g. FSC), and commercial timber plantations. The second includes reforestation, soil conservation and restoration, and environmental services (hydrological and biodiversity). Finally, and of most relevance for this dissertation, is the PROFAS (now PROFOS) program, established to provide support for existing and new FAs (see Chapter 2).

Since its creation in 2001, the budget of CONAFOR has increased by more than 3000%, yet legal national timber production has decreased by about 20% and the contribution of the forestry sector to the national economy has shrank (to 0.3% currently) (*Milenio*, 04-04-2011). Moreover, the trade deficit of the timber sector has increased dramatically, by more than 133% between 1997 and 2006, representing more than half of the entire trade deficit in the Mexican economy (CCMSS, 2007a; Merino, 2011). The CCMSS (2007a) pointed to three potential causes for the increasing deficit: (1) an accelerated increment of demand unmatched by national supply, (2) the drop in national production, and (3) a loss of competitiveness. In terms of competitiveness, in 2010 CONAFOR estimated that the f.o.b parity price of kiln-dried sawnwood in the sawmill yard was US$8.30 per board foot in Mexico, but only US$7.00 per board foot in Chile, Mexico's main competitor (World Bank, 2010). The community forestry

sector has a particularly hard time competing: prices from commercial plantations in South America and Southeast Asia are approximately 30% lower than similar products from Mexico's most efficient community forest enterprises (World Bank, 2010). This lack of competitiveness, in turn, is to blame on with excessive government regulation of the forest sector, low technological development of forest extraction and processing activities, and possible dumping practices (highly subsidized imported wood) (CCMSS, 2007a).

Another recurrent problem has been the funding priorities established by CONAFOR. Most of the current CONAFOR budget –about seventy-five percent (75%)– goes to reforestation and timber plantations (Chapela, pers. com., 2012; Merino ,2011). Reforestation, in fact, was a centerpiece of F. Calderón's presidency (2006-2012). This distribution shows a lack of attention towards the two main problems in the forest sector: the lack of institutional and productive capacities of many forest communities, and the degradation of forest resources through illegal logging, fires, etc. (Merino, 2011). Enforcement is another important problem, and although it is to some extent related to the lack of funds, it is also due to lack of will and corruption. For instance, despite a pledge of zero-tolerance for illegal logging from the federal government, only 0.13% of the illegal wood on average was confiscated from 2000 to 2006 (CCMSS, 2007b).

1.5.2. Local institutions

National laws, policies, and regulations regarding forest use are usually filtered by local institutions which can both halt deforestation and lead to sustainable forest management. As Gibson et al. (2000: 3, emphasis added) noted some time ago: "National governments rarely possess enough personnel or money to enforce their laws adequately…It is becoming increasingly clear that local communities both filter and ignore the central government's rules.

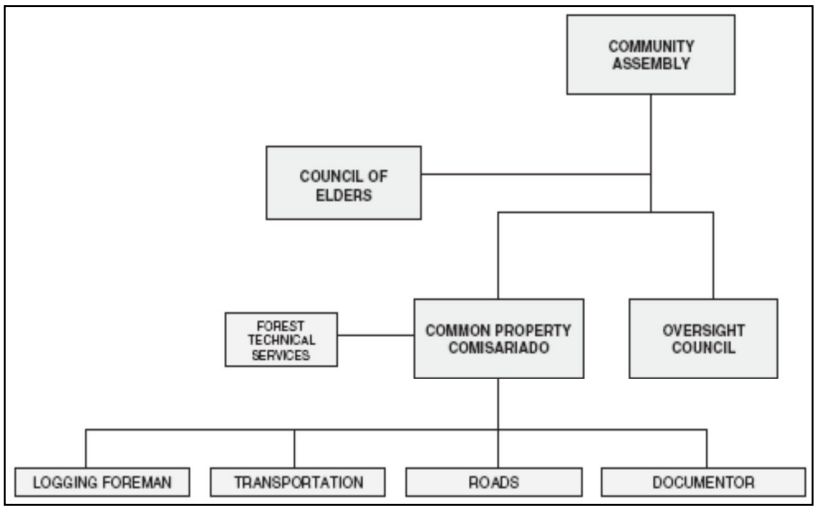
They also add their own rules, generating local institutions –rules-in-use- and patterns of activity that can diverge widely from legislators' and bureaucrats' expectations."

The common-property regime in Mexico evolved from a 'democratization of natural resources' based on over sixty years of land reform which gave communities (Antinori and Bray, 2005; Bray et al., 2006). As mentioned above, overall this has proved to be a very successful experiment in CPR governance. The basic organizational structure of agrarian (forest and non-forest) communities, as established in the Agrarian law, is composed of three basic units: the General Assembly, the Governing Board (*Comisariado*); and the Oversight Council (*Consejo de Vigilancia*). The General Assembly, composed of all official community members (all individuals with membership rights or *derechos*), is the supreme decision-making body in the community. It elects the *Comisariado* and the Oversight Council and serves as their oversight body, having to approve all of their decisions. The *Comisariado* is composed of a president, secretary, treasurer and their substitutes. It is the official community representative and as such is legally responsible for the community's forest activities, and by law must rotate every three years in what is known as the cargo system. Reelection is prohibited per the Agrarian law. The Oversight Council is similarly composed of secretary, treasurer and their substitutes. Its job is to make sure the community rules (bylaws) are being followed and monitor the work of the *Comisariado* (see **Figure 1.4**).

Many forest communities have additional positions depending on their level of 'market integration' –i.e. if they sell stumpage or roundwood or sawn wood (see Antinori and Bray, 2005; Antinori and Rausser, 2010; Bray et al., 2006). Some of these communities have further specialized their community forest enterprises (CFEs) with a structure that is separate, but connected to, the basic governance bodies. Some have a separate 'manager' or 'administrator'

position that runs the company and is not subject to the 3-year term limits. Some may also have administrative or elder councils composed of previous recognized community leaders and which serve as an advisory group. In other communities there are intra-community sub-groups, called 'work groups' (*grupos de trabajo*). The variety of organizational strategies suggests that they are adapted to local conditions and that there is no one 'correct form'.

Figure 1.4 Basic organization of Mexican forest community with timber extraction



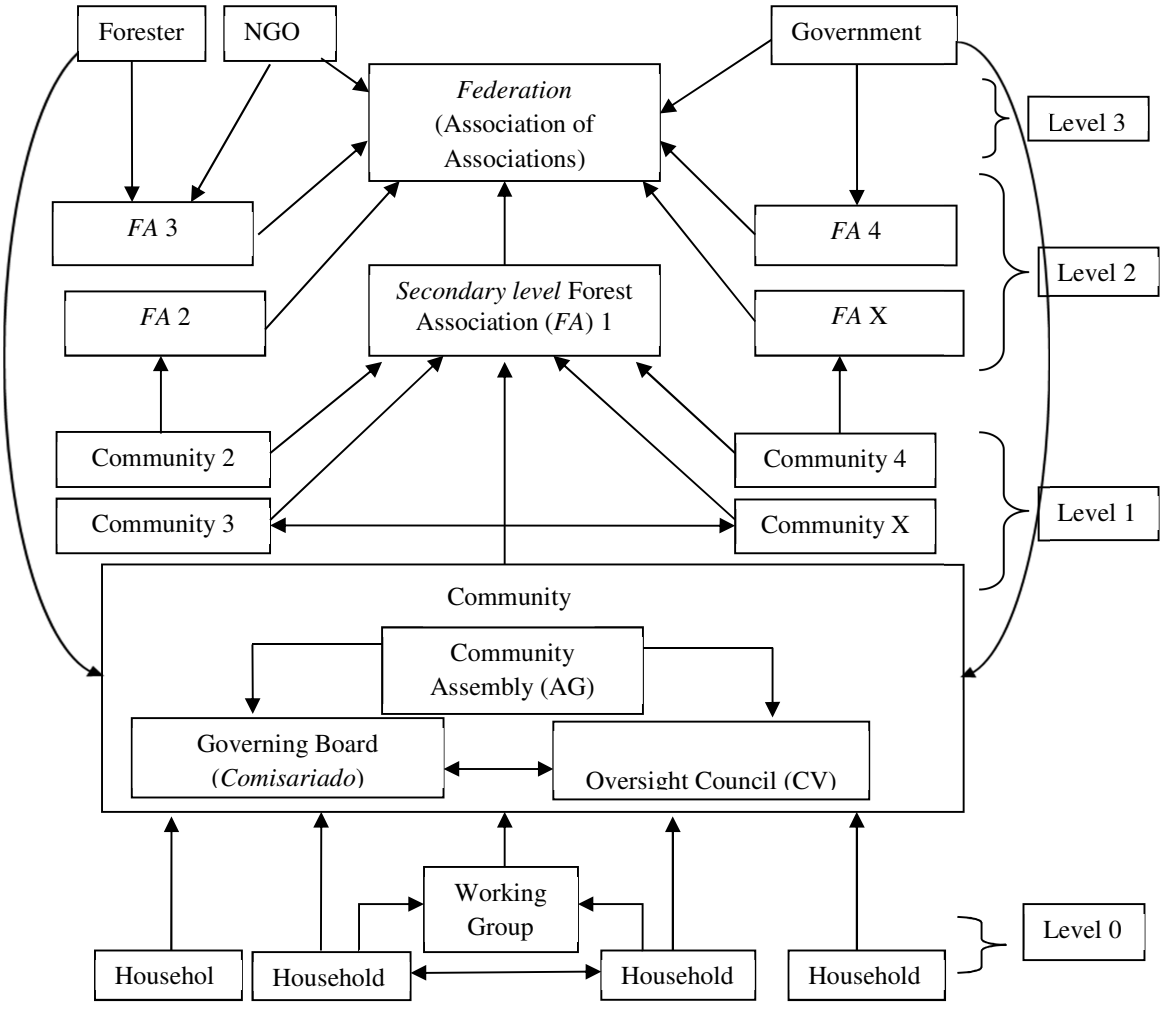
Source: Bray et al. (2006)

Finally, and most importantly for this dissertation, communities may be linked to inter-community associations (FAs) that can be organized at regional (sub-state), state, multi-state, and national levels, as well as to other external organizations such as NGOs. See **Figure 1.5.**

Gordillo (2007) argues that the main reasons why the community sector has not disappeared are the advantages it offers for different interest groups. For the state sector, it has been a vehicle for political control following a pattern of clientelism since its inception after the revolution (see also Fox, 1996). For the private sector, it has been a source of cheap labor as community members leave to seek employment outside the community; and a source of cheap

raw materials as private companies were given access to resources through leases/concessions. For individuals within the communities themselves, it is a peasant economy that provides mutual insurance, livelihood (even if at subsistence levels) and political representation, despite the contradictions of the system. In a way, the community is a political apparatus that permits mutual individual insurance and a body of peasant representation where common property is possibly a competitive advantage. Lastly, communities assure access to common-pool resources that would not be available to community members individually.

Figure 1.5 Community organization in cross-scale linkages in Mexican community forestry



Sorce: Modified from Antinori and García-López (2008)

1.5.3. Durango

Durango is located in the northern extreme of Mexico's interior or central region. The state is bordered by the state of Chihuahua to the north, Zacatecas and Nayarit to the south, Coahuila and Zacatecas to the east, and Sinaloa to the west (SNRMA, 2006). See **Figure 1.2** above. It has a total size of 123,451.2 km2 (12.3 million ha), which makes Durango the 4th largest state in Mexico, after Chihuahua, Sonora and Coahuila (in descending order) (Government of Durango, 2011). Its location gives Durango a strategic position for communications with the north, the center, the east and the west (Pacific Ocean) (Government of Durango, 2011). The capital is Victoria de Durango or simply Durango, located in the municipality with the same name.

Despite its size, Durango is a sparsely populated state. According to the 2010 Census by INEGI, the state had a population of 1,632,934, only 1.45% of the nation's total, and a density of 13.2 inhabitants per km2, 24th in the country (Government of Durango, 2011). The three main cities in the state concentrate almost 65% of the population (Durango – 35%, Gomez Palacio - 20.1% and Lerdo 8.6%) (Government of Durango, 2011). The remaining 35% is highly dispersed in 37 small urban settlements, and 5,757 rural settlements (*localidades*) of less than 2500 inhabitants; 91% of those settlements have less than 250 inhabitants (Government of Durango, 2011).

Durango is divided into 39 municipalities. This study's four (4) regions cover six municipalities, though two of these are not forestry regions and little analysis was done there. The state is crossed on its west side by the *Sierra Madre Occidental* mountain range, which crosses all of Mexico. This mountain range houses the state's main peaks, which surpass three thousand meters, and most of its forest resources (SNRyMA, 2006). The mean elevation above sea level 1,750 meters in the valley region and 2,450 meters in the *sierra* region. Durango's

climate is widely varied, ranging from very dry semi-hot in the northeast to temperate in the northwest and southeast, and tropical in small area in the west of the state (SNRMA, 2006).

Historically, Durango was one of the main and most important sites of large-scale industrialized during the Porfirio Díaz dictatorship (1884-1911). Díaz's 1884 law on 'waste' lands (*terrenos baldíos*) and the practice of denunciation and possession, allowed any individual could denounce a piece of land as being unused and acquire possession of it. From 1876 onward, Díaz began handing out an unprecedented number of permits for business operations and land ownerships to foreigners in Durango (Hart, 1999). In exchange, the president hoped to bring investment in communications and transport infrastructure, industry, mining, timber, agriculture and ranching (Hart, 1999). Many came to Durango purchasing lands from land measurement agents who declared lands as wastelands, many of which were inhabited and even owned by indigenous groups and peasants or by local *hacendados*. These entrepreneurs captured land at extremely low prices (for instance one sale in 1895 of 501,800 acres for $125,000 Mexican pesos). By 1910, North Americans owned the entire southwest *Sierra Madre* region of the state (65% of the land in Durango), rich in timber and mining resources, where they started large timber and mining operations (Hart, 1999). Among those was the Durango Lumber Company, which was a crucial actor in the emergence of FA-1 (see Chapter 2).

The Mexican Revolution (1909-1912) had a direct and drastic impact on the context of land distribution and social organization in Durango. It led to the massive exile of foreigners in Durango in 1911, and to a process of redistribution of land which lasted several decades. Land reforms in the 1920s and 1930s redistributed large tracts of the land that had been bought by the foreign and local investors (e.g. Hart, 1999). These land reforms cemented a strong relationship between the PRI (often through the National Peasant Confederation (CNC), which became an

intermediary in requesting land grants) and the peasants. However, many *latifundios* remained untouched, and land reform efforts after Cárdenas (1934-40) dropped substantially given the increasingly conservative Presidents which focused on economic growth rather than social reforms (Hamilton, 2011). Moreover, the properties redistributed where in marginal lands with little quality timber (e.g. Luján Castañeda, n.d). In the forest sector, the more conservative, pro-business national governments quickly turned to a combination of logging bans and concessions of large areas to large private timber companies. In 1948, the federal government established a total ban on extraction in two million hectares of forests in Durango (Zarzosa, 1958, in Bray and Merino, 2004), which lasted until 1967 (Arreola Valenzuela, 1995). At the same time, Durango had the most expansive logging concessions in the entire country; in a recent study, 71% of the communities sampled had had their land under a concession, compared to about 30% in Oaxaca and Jalisco (Merino and Martínez, 2011). Most of the land reforms in the forest regions in Durango took place in the 1960s and 70s. The first community forestry experiments also began in this period.[25] Of the 135 community forestry enterprises created by the government between 1970 and 76 in the country, 68% were in Durango and Chihuahua (Enriquez Quintana, 1976, in Bray and Merino, 2004).

Today, Durango's forest sector has immense importance politically and economically. The state occupies the second place nationally in terms of temperate forest land area (where most of the timber is produced), with 4.9 million ha (41% of the 12.3 million ha total landmass in the state) as temperate forests (*bosques*) (Government of Durango, 2011, SRNyMA, 2006). It is also the country's main timber producer and has the largest timber stock (estimated at 410,833,340 m3), giving it the title of "Number One Forest Reserve" in Mexico. The state's share of national timber production has oscillated between 20 and 30% in the last decade (SRNyMA, 2006). In

[25] For a more detailed analysis, see Chapter 2.

2008, the authorized extraction volume in the state was 2,470,114 m3; almost 90% was distributed between pine (73.3%) and oak (16.5%) (ibid).[26] Though 18 municipalities have extraction permits in the state, the majority of the authorized extraction volume (79.5%) is concentrated in six municipalities (SNRyMA, 2006); four of those six are represented in this study.

Most of the state's forests (about 80%) belong to the 395 forest communities that have collective lands the state. These forest communities exhibit a high level of organization compared to other regions. Durango has the highest percentage of communities with their own timber processing equipment (so-called 'Type IV' communities), and the lowest percentage of forest communities that have potential to sell timber but do not sell it (Type I communities).[27]

Durango has also been a leader in sustainable forest management. The state has the highest number of communities (22, representing 58% of the total in Mexico) and the largest forest area (377,183 ha, 53% of total) certified by the Forest Stewardship Council's (FSC) program (Trujano et al., 2010). The state also had the highest rate of growth of certification –for the 2010-2011 cycle of the PROARBOL program the amount of money assigned for certification in the state was larger than that assigned to *all other 31 states combined* (Trujano et al., 2010). In 2007, the state was identified by the then-chief of PROFEPA as having one of the "most ordered" forestry sectors in the country, showing low levels of ilegal logging (*El Siglo de Torreón*, 08-10-2007). In addition, in contrast to other regions of the country, Durango shows

[26] Durango has 24 species of the Pine genus (*Pinus*), 39 of the Oak genus (*Quercus*), two of the Fir genus (*Abies*), two of the Douglas-Fir (*Pseudotsuga*), as well the genuses Cypress (*Cupressus*), Juniper (*Juniperus*) and Spruce (*Picea*). Pine is the most commercially harvested genus because of its abundance, distribution, and wood characteristics. The pine species most used are: *Pinus cooperi, P. engelmannii, P. durangensis, P. arizonica, P. teocote* and *P. herrerae* (García and González, 2003).

[27] Type IV communities are indicative of high levels of organization and local collective action, since they represent more vertical integration into the timber market and a much more complex operation. However internal organization is not the only factor driving vertical integration; ecological factors (particularly forest size) have also been shown to be determinant (Antinori and Rausser, 2008).

low levels of deforestation, with a rate of only 1% between 1993 and 2002, 5% lower than the national average (Perez-Verdin et al., 2009).

Despite these notable qualities, Durango also shows some of the same problems as the national forest sector. The decline in the state's timber production and industrial processing activities, and to lesser extent of community forestry enterprises, and the loss of competitiveness, have been the two main concerns in policy circles in Durango (Government of Durango, 2011). The government posits that the main problems are the lack of integration of the timber production chain and the high cost of timber. Interviewees also pointed to the importation of cheaper and lower quality timber from Chile, the United States, Canada and even China (in the form of cheap furniture) as one of the main culprits. Increasing timber production has been the main response by the State government, through promotion of increased timber extraction in managed areas through small (20 ha) clear-cutting projects, tree production, industrial capacity, and improved combat of forest fires.

1.5.4. The four regions

In what follows, I provide basic relevant information on each of the regions where each FA operates to give background context of the cases. "Region" here is defined based on the Forest Management Units (UMAFORs) established by the government (CONAFOR and SEMARNAT) on the different watersheds within each Mexican state beginning in 2002.[28] Durango has a total of twelve UMAFORs, with at least one FA operating in each region; the four FAs in this study operates in separate UMAFORs, which I will refer to (in numerical correspondence to the FAs) as UMAFOR 1, UMAFOR 2, UMAFOR 3 and UMAFOR 4.[29] The information is mostly based

[28] For more on UMAFORs, see Merino et al. (2008) and Chapter 2.
[29] These numbers do *not* correspond to the real UMAFOR numbers.

on the Regional Forest Studies (ERFs) commissioned by CONAFOR for each UMAFOR across Mexico. These studies, funded through the PROFAS program and community contributions, used government data, expert interviews and focus groups to provide detailed assessments of the social, economic and ecological characteristics of each region, as well as the main problems and potential solutions. **Table 1.2** summarizes the basic characteristics of the four regions. **Table 2.3** in Chapter 2 shows the basic characteristics of each of the four corresponding FAs.

1.5.4.1. Location and area

UMAFORs 1, 2 and 3 are located in the southwest region of the state and border each other. In contrast, UMAFOR 4 is located in the uppermost northwestern portion of the state, bordering to the north and west with the state of Chihuahua. UMAFOR 1 and 3 have similar areas, each covering between 550 and 600 thousand ha, about 4.7% of the state area (see **Table 1.2**). UMAFOR 2 is the smallest of the four, with an area of 215,434 ha, of which 95% is in the Cataño municipality. UMAFOR 4 is the largest, with 1,133,614 ha;[30] almost half (48%) is covered by the Moriviví municipality and the rest distributed between Ciudad (32%) and San Jacinto (20%). Combined, the four regions cover 2,493,653 ha, which represent 20% of the state's area.

[30] In this case, it is important to underscore that the forest region of this UMAFOR is almost exclusively concentrated in one of the region's three municipalities, and the area of this municipality is comparable to that in UMAFOR 1 and 3.

Table 1.2 Some basic characteristics of the four regions

Region	Size(ha)	Pop.	Forest (ha)	For* (%)	Per cap**	Mgmt ***	Vol.(m3)	Indstry ****
UMAFO1	558,270	45,829	474,543	85%	10.4	43%	504,900	33.5%
UMAFO2	215,433	5,238	180,965	84%	34.5	30%	122,004	0%
UMAFO3	586,335	23,835	450,692	77%	18.9	43%	445,689	17%
UMAFO4	1,133,614	23,168	763,153	67%	32.9	30%	384,397	NA
TOTAL/ AVG.	*2,493,653*	*98,070*	*1,869,353*	*78%*	*19.1*	*36.5%*	*1,456,990*	*17%*

* Percent of total land that is forest
**Forest area per capita (ha/person)
*** Percent of forest area under management
****Percent of communities selling timber with primary and/or secondary processing

1.5.4.2. Population and economy

In terms of population, the regions present a similar picture as the rest of the state. The four municipalities, being predominantly rural, have even lower population densities. In all four, population was less than 50,000 (see **Table 1.2**). Moreover, the population remains stable (i.e. without growth). Significant migration is a common factor in all four regions. UMAFOR 1 is the most populated of the four regions and is also the most densely populated, with 9.5 inhabitants per km2, which is still below the state average (12/km2). About half (53%) of the region's population lives in two main towns, and the rest is in rural areas. UMAFOR 2 has the least population, with less than 6,000 inhabitants, representing less than 1% (0.35%) of the state population. Population density is very low (2.4/km2) and there are no settlement with more than 2,500 people. Many community members live in the capital and or work there, and one of the region's communities even holds its monthly assembly meetings there. UMAFOR 3 and 4 are in the middle of the group. In UMAFOR 3, population density is also in the middle, with

approximately 4 inhabitants per km2. In UMAFOR 4, which is significantly larger than the other three regions, population density is significantly lower, ranging between 1.6 to 2.6.

The four regions have very similar economies based on four main activities – agriculture, livestock grazing, forestry, and mining. Corn, foraging oat, and beans are the main products. Potatoes and squash are produced for self-consumption. Production and productivity tend to be low because of droughts, freezes, dispersion of agricultural land, inaccessibility, and poor technical assistance. Fish farming is also carried out in some communities, but mostly for self-consumption. Environmental services, ecotourism, and wildlife hunting (particularly of deer and peacocks) are considered as having much potential. High levels of unemployment, low payment and the seasonal nature of forest-related jobs, were identified in the ERFs and my fieldwork as a major issue in all four regions, mainly in forest communities.

There are some cross-regional differences. In UMAFOR 3 and UMAFOR 4, mining is an important component of the economy, but it is confined to the municipal capitals. Fish farming is also much more developed than in the other regions. There are fourteen trout farms of which ten are currently operating, producing 14.75 tons/year, approximately 50% of their full capacity. FA-3 has had a lot to do with this; one of its members has the largest trout farm in the state.

In UMAFOR 2 and UMAFOR 4 there is a clear division, geographically and economically, between two sub-regions – a forest sub-region where forestry (i.e. timber extraction) is the main source of income and employment, and a semi-arid sub-region where agriculture and ranching are the main activities. The semi-arid sub-region in UMAFOR 4 has the largest and most important cattle grazing area in the entire state.

1.5.4.3. Social conditions

All four regions have similar conditions regarding basic services like housing, potable water, drainage, electricity, health, education, and transportation. These services, and particularly water, sanitary connection and electricity, often do not reach forest communities, and are mostly concentrated in the municipal capitals due to dispersion of settlements, rugged topography and the scarcity and poor condition of communication routes. Houses without sanitary connection usually use latrines, while a portion of those without electricity have solar panels.

Levels of formal education are low in all four regions. One of UMAFOR 1's strengths is that it a university focused on forestry issues. In forest communities, formal education is complemented with environmental education and technical capacity-building courses offered by CONAFOR and by the communities' foresters. Levels of health coverage in the four regions are also low, ranging between less than 30% in UMAFOR 2 and UMAFOR 3, to 38% in UMAFOR 1 and 43% in UMAFOR 4.

Poverty in all four regions is high. In UMAFORs 1, 3 and 4, the percent of families under "patrimonial poverty" (i.e. not having enough income to cover their basic needs of food, education, health, clothing, housing, and transport) is between 70% are 80%.[31] These three regions also have high levels of social marginalization (*rezago social*). In UMAFOR 2, the level of patrimonial poverty (55%) and the level of social marginalization (low-very low) are lower than in the other three regions, but this is partly a bias due to the proximity to the capital.

1.5.4.4. Road infrastructure

Road infrastructure is an important factor influencing production costs in the forest sector, and has been identified as one of the main problems in Mexico (Merino, 2011). Contrary to the US and Canada, the Mexican government has largely abandoned construction and maintenance

[31] The data is in the ERFs and is taken from the National Population Commission's 2006 study (CONAPO, 2006).

(ibid). Communities often have to invest heavily in these activities. In all four regions, the poor quality of the road infrastructure (unpaved roads, insufficient maintenance) was identified as one of the main problems. UMAFOR 1 and fared the best in this category, with 95% and 70% of their roads paved. The amount of roads in UMAFOR 1 is considered sufficient for the timber extraction activities. The region is crossed by two major highways that connect it to the coast and to the state capital, giving it easy access to other timber markets. In UMAFOR 2, road conditions were substantially enhanced in 2011 with the completion of the paving of the region's main road that connects directly to the capital. Previously, according to interviews, it took approximately 8 hours to get from the region's main town to the capital; now it takes about 1.5 hours, and even less to some of the communities that are closer.

UMAFOR 3 and 4 have the worst road conditions of the four regions. Only 5% and 11% of road infrastructure respectively are paved. In UMAFOR 3, an additional 79 km of paved roads are needed, and more than 300 km need rehabilitation. In UMAFOR 4, 71% of the roads are in poor conditions and the rest are in 'regular' conditions. The region is connected to a city in the south of Chihuahua through a 125 km route of paved road. The same road has 120 km of unpaved road which links the center of the forest sub-region to the municipal capital. There is an ongoing project to pave a portion of this dirt road.

1.5.4.5. Forest management

All four UMAFORs are predominantly forested and, as stated above, are four of the five most important forest regions in the state. In terms of forest area, UMAFOR 4 has the largest of the four and of the state, UMAFOR 2 is the smallest, and UMAFORs 1 and 3 have similar 'in-

between' sizes (see **Table 1.2**).[32] Percentage-wise, however, the relationship is somewhat inverted: UMAFORs 1 and 2 are the most forested, followed by UMAFOR 3, while UMAFOR 4 is the least forested. In terms of per capita forest area, UMAFOR 2 and 4 have the highest (34.5 and 32.9 respectively), followed by UMAFOR 3 (18.9) and UMAFOR 1 (10.4). In total, the four regions have 1,869,353 hectares of forest, which is 37.5% of the state's total.

The types of forests predominant in each region include pine, pine-oak, oak-pine, and oak formations. Proportions of forest area corresponding to pine forests vary and are highest in UMAFOR 1 (48%). Other ecological zones are induced grassland, natural grassland, and shrub lands. Forest areas in UMAFORs 1, 2, and 3 have relatively high timber productivity, with over 70% of these areas having high or moderate productivity.[33] UMAFOR 4, in contrast, has approximately 30%.

The area under forest management ranges between 30% in UMAFORs 2 and 4 to 43% in UMAFORs 1 and 3 (see **Table 1.2**). In terms of timber volume extracted, UMAFORs 1, 3 and 4 all have similar volumes that ranges between 400 and 500 thousand m3; UMAFOR 2 has a significantly lower volume (see **Table 1.2**).[34] Still, all four regions are estimated to be under-producing (at about 70%) compared to their full potential. In relation to this, declining levels of timber production was identified as one of the main forestry-related problems. For instance, production in UMAFOR 1 has fallen since 2000 by an estimated 40% (*El Siglo de Durango*, 04-15-2010).

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[32] Forested areas in Mexico include "forests" (temperate forests of pine-oak formations) and "jungles" (*selva,* forests in lower elevations with sub-humid or semi-dry temperatures with deciduous species). Forests are the only commercially viable forestlands in Durango. Above, I have included only (temperate) forest areas. The area of *selva* per region is: 47,273 ha in UMAFOR 1; zero (0) ha in UMAFOR 2; 106,680 ha in UMAFOR 3; and 49,647 ha in UMAFOR 4.

[33] Moderate productivity is defined as more than 15 m3/ha/year and less than 40 m3/ha/year of tree volume growth. High productivity is defined as more than 40 m3/ha/year.

[34] This volume includes pine, oak, deadwood and other minor species; about 70-75% in each region is for pine, except in UMAFOR 4 were a very high proportion of this volume (about 50% some years) comes from deadwood.

Forest management in all four regions is generally characterized as good by knowledgeable observers, with the expected variation between different communities. Each has important historical trajectories of forest management, and of community forestry, but UMAFOR 1 has always been considered a national leader in this regard. In the 1930s, it was the site of one of the largest private timber companies in the country. It was also where one of the first community forestry experiments and one of the first FAs were formed. Currently, the region stands out as having the most communities and forest area in the state covered by the FSC sustainable forestry certification.

UMAFORs 1, 3 and 4 have relatively high levels of industrialization of the forestry sector, each with dozens of sawmills, box, pallet and molding workshops, and lumber yards, and several charcoal kilns. A substantial difference, however, exists in terms of the local processing of wood. In UMAFOR 1, about 80% of the current production is industrialized locally (within the region), while the remaining 20% is industrialized in other parts of the state (mostly in the capital city of Durango). In contrast, in UMAFORs 3 and 4 only a third of the extracted wood is processed in the region.

UMAFOR 2 is substantially less industrialized than the other three regions. Currently, there are no sawmills, only two small coal factories and 4 small-dimension factories for pallets and box part. The vast majority of the timber extracted from the region is sold unprocessed – either in 'standing board' (extracted by the buyers) or extracted by the landowners.[35] However, even in UMAFORs 1, 3 and 4, the value added to the wood is relatively low compared to the

[35] The region's main timber company had a sawmill in the region but closed it after a few years and moved to the city of Durango; according to the manager, finding a sufficient and consistent workforce was difficult and the costs of operation were higher. Several of region's communities also operated sawmills in the 1990s. In 2010, the largest forest community installed a new sawmill but to date it has not been able to begin operations because it lacks electricity. The ERF estimated that there was potential for only two or three communities to install small timber processing operations.

potential. Most of the timber in the three regions is sold as logs (*en rollo*), with a smaller percentage sold as sawn wood.

1.5.4.6. Conservation

Formal conservation areas are mostly based on the legally-mandated protection of buffer zones (areas next to streams, rivers and lakes) and areas with more than 100% slope. However, each region also has additional areas destined for conservation. Overall, conservation lands represent between 4% and 5% of the forests in each region. **Table 1.3** presents this and other regional indicators of ecological sustainability. Some communities are also involved in CONAFOR's environmental services (PSA) program, which pays communities to conserve a portion of their forests to maintain provision of these services (see **Table 1.3**). Because of their location in the highest parts of the watershed, the regions serve an important role in protecting water. Unfortunately, these programs are only approved for 5-year periods and communities do not always renew them. Moreover, definitions of the eligible areas for the PSA are somewhat arbitrary (Merino, 2011), and many areas with potential for environmental services in Durango have been excluded (e.g. UPUCODEFO4, 2008). Finally, reforestation and soil conservation activities are carried out yearly as required by management plans. These activities are supported with funding from CONAFOR and help regenerate areas where extraction is carried out or which have been impacted by forest fires, overgrazing or illegal logging (see **Table 1.3**).

1.5.4.7. Land use change

Deforestation was found to be moderate in the four regions. The total area lost (length of period varied) represented between 2.4% (in UMAFOR 1) to 7.3% (in UMAFOR 2) of each

region's forest land, which equals less than 1% per year (between 0.2% to 0.7%) in each case (see **Table 1.3**).[36]

Table 1.3. Ecological indicators of sustainability in the four regions

	UMAFOR 1	**UMAFOR 2**	**UMAFOR 3**	**UMAFOR 4**
Indicat.	**Level and Description**	**Level and Description**	**Level and Description**	**Level and Description**
Deforest	Level: Moderate (0.2% per year) Period: 1991-2003 Area: 11,220 ha Per year: 1,020 ha	Level: Moderate (0.7% per year) Period: 1993-2004 Area: 13,207 ha Per year: 1,321 ha	Level: Moderate (0.3% per year) Period: 1991-2000 Area: 12,495 ha Per year: 1,249 ha	Level: Moderate (0.3% per year) Period: 1990-2006 Area: 31,000 ha Per year: 1,938 ha
Forest Degradt	Level: Moderate (0.7% per year) Period: 1991-2003 Area: 75,007 ha Per year: 7,501 ha	Level: Moderate (0.8% per year) Period: 1993-2004 Area: 14,576 ha Per year: 1,458 ha	Level: Moderate (0.4% per year) Period: 1991-2000 Area: 15,642 ha Per year: 1,738 ha	Level: Moderate (0.2% per year) Period: 1990-2006 Area: 21,970 ha Per year: 1,373 ha
Forest Fires	Level: Moderate (0.4% per year) Period: 1995-2006 Area: NA Per year: 2,000 ha	Level: Moderate (0.6% per year) Period: 1998-2006 Area: 11,113 ha Per year: 1,389 ha	Level: Low (0.2% per year) Period: 1998-2006 Area: 8,795 ha Per year: 977 ha	Level: Moderate (0.2% per year) Period: 1995-2006 Area: 20,481 ha Per year: 1,707 ha
Reforest.	Level: Low Period: 2002-2006 Area: 1,727 ha % of needed*: 4 Per year: 345 ha	Level: Low Period: 2002-2006 Area: 1,614 ha % of needed: 7.5 Per year: 323 ha	Level: Moderate Period: 2002-2006 Area: 2,998 ha % of needed: 25% Per year: 600 ha	Level: Low Period: 2002-2006 Area: 1,202 ha % of needed: 11.5 Per year: 240 ha
Conserv Areas	Level: Low Area: 23,103 ha % of forest: 4.9	Level: Low Area: 8,680 ha % of forest: 4.8	Level: Low Area: 20,396 ha % of forest: 4.5	Level: Low Area: 29,282 ha % of forest: 3.8
PSA areas	Level: Low Area: 13,099 ha % of forest: 2.8	Level: Low Area: 6,202 ha % of forest: 3.4	Level: Very low Area: 0 ha % of forest: 0	Level: Very low Area: 8,700 ha % of forest: 1.1

* Percentage of area considered degraded and therefore subject to restoration

[36] The data used in in the ERFs was the INEGI land use and vegetation sheets, which are at 1:250,000 scale. Deforestation is defined as the net change in area covered by tree vegetation (forests and jungles).

Most of the deforestation and degradation occured in closed (high density) pine and pine-oak formations.[37] Open pine-oak formations and grasslands (used for livestock), in contrast, where the land-use categories with the largest increases. The former represent the process of land degradation from more dense to less dense forests, while the latter show the process of deforestation. UMAFOR 3 was the only region where closed pine forests increased (by 2,311 ha).

The main causes of deforestation and degradation were common across the four cases: forest fires, forest plagues and diseases, expansion of cattle grazing land and other land uses, and illegal logging. The increase in grasslands points to this as one of the main drivers of deforestation. Infrastructure expansion –particularly electricity lines and highways– was an important cause in some areas. Forestry-related impacts also present a risk (particularly of overharvesting), but reforestation and restoration activities that take place every year have facilitated the gradual recovery of these areas. Foresters also identified the low level of 'forestry culture' among landowners as a cause.

1.5.4.7. Social organization of timber production

In UMAFOR 1 about 90% of the region's annual extraction volume is produced by communities. Most communities (48%) administer their extraction process and sell their wood unprocessed, either with or without transportation to the lumber yards (*patios de concentración*). These communities, however, represent only 4% of the annual extracted volume in the region. The second-largest group of communities are those with primary processing capacity (box workshops and/or sawmills); they represent 28.5% of all communities but extract the vast

[37] Closed forests are defined as those with a tree density of more than 40 m3/ha, a tree coverage of over 40%, and a predominance of pine species (more than 80% of trees). Open forests are those below those boundaries.

majority of the region's volume (74.5%). Eight communities (19%) sell stumpage wood (*en pie*), the lowest level of organization in which the landowners rent out their land to a private contractor which controls extraction and processing; they represent only 2% of the total annual harvested volume. Finally, only two communities (5%) have achieved the highest level of development, i.e. secondary processing capacity or 'added value', and they represent 13% of the volume.

In contrast, in UMAFOR 2, 71% of the timber is produced by communities and 29% by private properties. Moreover, there are no communities with value-added production. Most of the communities (61%) sell "standing" (buyer handles the entire harvesting, extraction and transport process), 28% sell in logs (community handles the process), and the remaining 11% do not harvest timber.

In UMAFOR 3, there are 48 communities (representing 35% of all properties with forest management) which produce about 66% of the timber. Of these, the vast majority (81%) sell "standing" timber and cover the largest share of the region's total volume (about 40%). Only 1 community sells logs, generating 9% of the volume, and 17% of communities sell sawn wood, pallets or packaging boxes, accounting for 17% of the timber. The remaining 34% of the timber is produced by 90 private properties; most of them produce standing.

In UMAFOR 4, 78 of the 125 properties with forest had timber extraction. There is no information available on the types of products and volume each property managed.

1.5.4.8. Forest associations and other regional organizations

Each of the four regions has at least one forest association (FA). In UMAFOR 1, all of the communities with current timber extraction in the region are officially incorporated into FA-1. A

few small non-forestry communities are not integrated into the association. There is also a parallel association that provides forestry services and covers most of the region's communities. In UMAFOR 2, there are two associations: FA-2 and a newer association created through the PROFAS program, which groups almost all of the region's communities and private properties. This other association works mostly on carrying out research, supporting the regional eco-tourism projects and promoting environmental services. Seven of the region's 19 communities (38%) are not integrated into any association. UMAFOR 3 has three forest associations in the region, though one of them is currently non-operational. FA-3 is the largest and oldest of them; the other two were formed with the PROFAS program. There are 24 communities and 42 private properties that are not integrated into any FA. There are also two road committees (one of them is closely linked to FA-3) that contribute financially to maintenance of the region's roads. In UMAFOR 4 there are three FAs, including FA-4. However, in both regions, very large proportions of the communities (50% in UMAFOR 3, 70% in UMAFOR 4) are not organized in any FA.

In each region there are also producer associations or "chains" (*cadenas productivas*) that seek to integrate the process of production from extraction to processing and sale. In UMAFOR 1, there is one functional producer association (*cadena productiva*) which groups all of the region's ecotourism enterprises. In UMAFOR 2, there are two producer associations organized in the region, one for vegetable coal led by a coal company with the participation of some communities, and another for pallets organized by four communities. UMAFORs 3 and 4 do not have any registered producer associations, through there is certainly potential for them, particularly in the deadwood market in UMAFOR 4.

The presence of non-governmental organizations in the four regions is scarce. The only one that stands out is Rainforest Alliance, which works with forest certification, has worked with some communities in each region (except UMAFOR 4) and has a strong presence in UMAFOR 1. In UMAFOR 3 the NGO Caritas helps basic needs like food baskets. The National Peasant Confederation (CNC) also has presence in all four regions and works mostly on agricultural and livestock issues, without any direct involvement in natural resource management.

Despite the relative strength of community forestry in the four regions, there are substantial organizational challenges that are highlighted in the ERFs. An illustrative example is UMAFOR 1. Analyses carried out by the FA itself as well as my own interviews highlight that while this region was considered one of the strongest in the country in the 1970s and 1980s, the level of organization has begun to weaken and fall behind other regions. The FA-1 *Strategic Plan* (FA-1, 2010) points out that from 2002 to date, there has been an increase in the sale of standing wood and concludes that social organization in their region is "unstable" and "underdeveloped".[38] Low levels of education and capacity-building in forestry, and poor extension services were identified as related problems. At the community level, this is reflected in the process of vertical disintegration, evident in all four regions (see also Antinori and Rausser, 2010 for data on a sample of 28 communities in Durango).

1.6. Overview of Chapters and Summary of Findings

This dissertation is organized in a paper format, where each of the chapters serves as a separate piece of research focusing on a specific issue related to cross-scale/multi-level governance, and aims to provide a theoretical and empirical contribution to the relevant

[38] This characterization coincides with my own findings; the reasons are explored in depth in Chapters 4 and 5.

literature. Given that most of the information in the dissertation comes from a comparative case study of four FAs, there is inevitable repetition in the papers, particularly regarding the theoretical framework, methods and case descriptions. I have tried to minimize to the extent possible these duplications.

Following this Introduction, **Chapter 2** traces the emergence and historical evolution of inter-community forest associations (FAs) in Mexican community forestry. The analysis seeks to explain how and why these organizations emerge and evolve over time by looking at different factors that drive these historical transformations. The study is based on an extensive literature review of existing studies combined with fieldwork spanning a period of approximately three years (2007-2011). The findings show how forest associations form and transform in response to changes in community needs, public policies, and political-economic conditions.

Chapter 3 analyzes the local-level impacts of cross-scale linkages by evaluating the operation of the four FAs (two top-down and two bottom-up). Specifically, the chapter focuses on two inter-related issues: (1) the services that each association provides to their member communities and how these services impact forest management, political representation and community forestry enterprises; and (2) the differences in services, benefits and internal governance between top-down and bottom-up FAs. The findings show that FAs are a central component of multi-level/cross-scale governance in Mexico which can be crucial for the provision of services, goods and infrastructure related to the protection and enhancement of community forests, the economic development of community enterprises, and the political representation of these communities. At the same time, the study finds important differences between top-down and bottom-up FAs, while pointing to some of the advantages and disadvantages of each of these linkages.

Chapter 4 delves more in-depth into the dysfunctionalities of cross-scale governance, and particularly on the problems of elite capture and persistence and their ensuing conflicts, in the four FAs. It attempts to explain why elite capture occurs and how it can be mitigated. The results show the multiple external and internal actors involved in the capture of FAs for both political and economic purposes. In particular, I show certain organizational problems or "pathologies" –using a medical metaphor– such as leaders and associated foresters utilizing the organizations as 'ladders' to escalate into higher political positions (which brought about internal divisions) or using them to profit. Furthermore, they underscore that the different forms of capture can be explained as a combined effect of institutions, power inequalities and political-economic and historical factors.

While Chapter 3 shows that there is a wide range of observable benefits provided by FAs to member communities, and Chapter 4 explains one of the main problems with these regional collective action endeavors, they do not delve on the different levels of impacts, or the comparative success of each type of FA. **Chapter 5** directly addresses this issue by analyzing how a combination of internal and external factors influences the effectiveness of the four FAs in the study. Applying Ostrom's diagnostic framework, I focus on how five factors –origins and previous experience, leadership, autonomy, social capital and internal institutions and governance– affects the associations' level of benefits and their perceived success. The results show that leadership, financial autonomy, social capital and enforcement of rules are recurrent variables but that they operate in different combinations to influence success. Origins did not show the expected relationship to elite capture or success –the most successful FA (FA-3) and one of the two with the least elite capture (FA-4) were both top-down. Finally, previous experience and political autonomy were not as relevant as expected for success.

Chapter 6 provides a summary of the main results and some concluding remarks about the empirical and theoretical contributions of this dissertation, its policy implications, and the gaps that should be addressed in future research.

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CHAPTER 2

HISTORICAL TRANSFORMATIONS IN THE FOREST COMMONS: THE EMERGENCE AND EVOLUTION OF INTER-COMMUNITY FOREST ASSOCIATIONS IN MEXICO

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ABSTRACT: *Cross-scale linkages play an important role in common-pool resource governance. However, these linkages and their origins and transformations only recently began to receive scholarly attention. To address this gap, in this paper we trace the emergence and historical evolution of inter-community forest associations, as a form of cross-scale linkage, in the Mexican community forestry sector. We analyse different factors that drive the formation and change of these associations over time. The research is based on a review of existing studies, community survey data and case studies over a three-year period (2007-2011). The findings show how forest associations form and transform in response to changes in public policies, political-economic conditions, and community needs. Overall, the paper raises important issues about the need to analyse the role of cross-scale governance in common-pool resources, to understand changes in these arrangements as a form of institutional change from a historical, process-centred perspective, and to analyse the role of the State in these processes.*

2.1. Introduction

Recent scholarly work has begun to devote attention to the role that cross-scale linkages play in common-pool resource (CPR) management (e.g. Basurto, 2007; Berkes, 2002; Heikkila

et al., 2011; Mwangi and Wardell, 2012; Young, 2002).[39] In this tradition, some have pointed to inter-community forest associations (FAs)[40], which provide services such as political representation, technical forestry services, and marketing and production (Antinori and García-López, 2008; Bray et al., 2012; Paudel et al., 2010; Taylor, 2010). With growing recognition of the global relevance of forest and the importance of community-based institutions for their management, it is important to understand how these inter-community associations shape collective action and resource governance. This, in turn, requires evaluating their diverse origins and purposes.

Mexico's highly successful community-based forest management experience has led some to call it a "global model for sustainable landscapes" (Bray et al., 2003; see also Barsimantov, 2010; Bray et al., 2005; Merino and Martínez, 2011). A significant number of community forestry enterprises (CFEs) have consolidated their entrepreneurial strategies and diversified their forest industries (Antinori and Bray, 2005; Antinori and Rausser, 2009; Merino and Martínez, 2011). Deforestation in Mexico, particularly in temperate forests, declined considerably in the last decade (about 50% according to CONAFOR –see *El Siglo de Durango*, 10-03-2010), and community forestry is likely one of the contributing factors, along with emigration and agricultural abandonment (Bray et al., 2008; Merino, 2011). However, many forest communities involved in forestry activities still face substantial challenges related to weak organization, insufficient management skills, and limited access to markets (Barsimantov, 2010; Merino and Martínez, 2011).

[39] Cross-scale linkages can be defined as points of interaction or cooperation between different actors or across different levels of governance (Heikkila et al., 2011).

[40] This definition subsumes other monikers, such as inter-community organizations (ICOs) (Antinori and García-López, 2008), secondary-level associations (Taylor, 2010), inter-community collective action (Bray et al., 2012), community networks (Britt, 2002; Paudel et al., 2010), or regional organizations (Fox, 1992).

Recent scholarship suggests that connections (linkages) to external actors like NGOs, foresters and FAs at multiple governance levels or scales can be crucial for the socio-economic and ecological success of community forestry activities (Antinori and García-López, 2008; Barsimantov, 2010; Chapter 4; Orozco-Quintero and Berkes, 2010). Surveys of forest communities in Mexico show that the majority have at some point held membership in a forest association (Antinori, 2000; Antinori and Rausser, 2010; Bray and Merino, 2004).[41] In recent years, the government has channeled substantial sums of money to existing and new associations. Yet important gaps remain in our understanding of how and why linkages between communities and other actors across scales emerge and evolve over time, the role of the State and the political-economic context in which the linkages operate (see Anthony and Campbell, 2011; Armitage, 2008; Fréchette and Lewis, 2011; Stern et al., 2002; Thiel and Egerton, 2011). In fact, evaluating "how these linkages have evolved, at what points in time, and in relation to what forces", has been identified as one of the research directions in this field (Heikkila et al., 2011). After all, understanding how and collective action begins at different levels of governance is central to explaining the sustainability of resource management (Poteete et al., 2010).

The amount of potential explanatory variables is large, requiring careful contextual analyses using combinations of methods (Poteete et al., 2010). Some see cross-scale arrangements as a result of bottom-up cooperation across levels, others as a strategic move by the State and/or local actors to maintain control over decision-making, and still others as a product of historical path dependencies and macro-structural changes. When considering these perspectives, a key question is how grassroots collective action and institutions may emerge in highly

[41] In 1992, about 20% of the country's forest communities participated in at least one FA, with 83 FAs across the country, 54 of them regional; by 2004, 43 such associations existed, with 20 confirmed to be functional (Bray and Merino-Pérez, 2004).

centralized states or authoritarian systems (as has been the case in Mexico) where resource users have little autonomy and few incentives to cooperate (Fréchette and Lewis, 2011).

This chapter seeks to address these gaps by analyzing the historical trajectories of inter-community forest associations (FAs) in Mexico, focusing on the main macro- and micro-level factors influencing their origins and evolution. By combining explanatory factors, we seek to close the gap between different theories of collective action and between two traditions in commons scholarship which have focused on either macro or micro-level factors (Johnson, 2004; Armitage, 2008; Clement, 2010; Sikor, 2006). We also engage with recent studies of decentralization that critically analyze the reasons for the formation of, or the lack of change in, natural resource governance regimes (e.g. García-López and Kashwan, 2008; Nayak and Berkes, 2008; Poteete and Ribot, 2011; Ribot, 2009; Ribot et al., 2006), but which have had very little to say about FAs. In particular, we highlight the conceptualization of decentralization of authority to local (community) and regional (inter-community) organizations as a way of creating multi-level/cross-scale governance, i.e. re-scaling (see Mwangi and Wardell, 2012); (b) the role of FAs in driving and implementing decentralization reforms; (c) how the creation of new FAs or modification of existing ones can be a component of these reforms; and (d) the effects that decentralization policies and programs can have on existing FAs.

The analysis is based on three sources developed using both qualitative and quantitative methods: (1) a review of existing literature on Mexican forest associations , (2) empirical data from a survey of 41 communities (see Antinori and Rausser, 2010), and (3) case studies of four associations from Durango, Mexico, represented in the survey (labeled FA-1, FA-2, FA-3 and FA-4). We draw inspiration on the "process-tracing" approach, which traces causal processes of interest through careful, structured comparisons (George and Bennett, 2005; Stinchcombe,

2005); in this case, we compare different FAs formed over several historical periods to determine the 'when, how, why and by whom' (for a similar application, see Britt, 2002). The large-N survey data allows us to combine this qualitative process analysis with a variable-based approach focused on correlations. This mixed approach contributes to the study of inter-community collective action and institutional change by combining specific, quantitative and qualitative information within a contextual narrative to characterize the drivers of the emergence of these collective action processes in an important forestry sector. The results show the complex combination of macro and micro-level factors, including actors' interests and strategies as well as political-economic conditions. They also underscore the hybrid and dialectical nature of cross-scale/multi-level governance, with interactions between local bottom-up pressures for change and top-down government strategies, and between cooperation and conflict. The historical, evolutionary approach allows us to evidence these interactions. Finally, we also demonstrate the crucial role of FAs in the emergence and success of community forestry in Mexico.

The chapter is organized as follows. Section 2 provides a review of the macro and micro-level factors expected to influence cross-scale linkages' emergence and change. Section 3 traces the historical emergence and evolution of Mexican FAs in five distinct periods related to shifts in national forest policies and political-economic conditions. Section 4 presents the results from the Durango-Michoacán database, followed by the case studies which represent FAs from four of these periods. Section 5 presents a discussion of the main findings in the study and their theoretical and practical implications, followed by a conclusion.

2.2. Explaining the emergence of cross-scale linkages: Insights from the literature

When studying collective action and institutional change, we need to consider that action at one level occurs within a given institutional and socio-political context which creates constraints and opportunities for participants (Ostrom, 2005; Poteete et al., 2010). Thus, the ability of actors to shift levels of action so as to change the higher-level rules bounding them is crucial (Ostrom, 2005: 33, 59-62). Social movements and organizations such as FAs that can facilitate this shift may be created for this purpose. At the same time, collective action and institutional change cannot be explained only as motivated by efficiency and cooperation; power, conflict, path dependency and political-economic opportunities and constraints are also important (Clement, 2010; Kashwan, 2011; Fréchette and Lewis, 2011; Thiel and Egerton, 2011).

In different historical periods, Mexican FAs have emerged in multiple forms and for multiple reasons. In many cases, their formation has been driven by government policies or strategic government actors; in others, by grassroots cooperation or local elites seeking power or rents. Moreover, they have emerged under a socio-political context characterized by a state with a very strong political involvement on rural life, but very weak action on issues like road construction and provision of basic services. These processes cannot be understood along single disciplinary lines. Inspired by recent scholarship pointing to the need for more nuanced analyses that incorporate multiple perspectives to explain institutional change (Armitage, 2008; Clement, 2010; Fréchette and Lewis, 2011; Ostrom, 2009; Poteete et al., 2010), we consider multi-disciplinary explanations from scholarship in CPRs, social movements, and cooperatives.

2.2.1. Macro-level context: Political opportunities and constraints

Local forest governance operates within varied historical, political, and socio-economic contexts. Understanding the influence of these contexts on collective action has been the focus of a particular strand of the 'political economy of natural resources' or 'entitlements' tradition (see Armitage, 2008; Johnson, 2004; Sick, 2008; Sikor, 2006; Clement, 2010). Similarly, the social movement literature focuses on how political opportunities –incentives or disincentives for collective action– influence movement emergence and success. These opportunities depend on the openness of formal institutions to potential challenges; stability of coalitions among political elites; alliances between social movements, government and non-governmental actors; and the level of coercion or repression of collective action (McAdam et al., 1996; McAdam and Tarrow, 2011; Tarrow, 1998).

An important component is the institutional context (e.g. laws, policies) in place, which affects the incentives that actors face when making collective action decisions (Ostrom, 2007; Poteete et al., 2010). Resources provided by the state can generate incentives for the formation of organizations like FAs (Anthony and Campbell, 2011; Mettler and Soss, 2004; Tarrow, 1998). Policies can also structure, stimulate, and/or stall participation directly by mandating specific organizational forms or creating new organizations directly. Decentralization can create openings for collective action to emerge, and is usually tied to the creation of multi-level governance regimes (Mwangi and Wardell, 2012); yet decentralization can also create 'closings' by excluding certain groups, facilitating elite capture, or recentralizing authority in government agencies (e.g. Johnson et al., 2005; Larson, 2005; Poteete and Ribot, 2011; Ribot et al., 2006; Sikor and Ngoc Thanh, 2007; Wollenberg et al., 2006).

In the US, laws limiting free forestry extension services created a 'management void' for landowners, indirectly promoting the emergence of landowner cooperatives to provide those services (Tiles et al., 2004). In Turkey, the large number of laws regulating coops, the government's insufficient support and its political intervention have limited their formation and development (Atmiş et al., 2009), while in India, post-independence politics envisioned these organizations as part of local rural development, and consequently granted them special status (Lalvani, 2008). Market and government failures such as imperfect competition, excessive concentration of power, and unmet demand for goods and services may also spur the creation of coops (Bebbington, 1996; Fulton, 1999). Alliances with key external actors can also facilitate the emergence and sustainment of movements or organizations (e.g. Britt, 2002; Johnson et al., 2005; Paudel et al., 2010). However, external actors may hinder local collective action (e.g. Barsimantov, 2010; Larson, 2005; Mitlin et al., 2007; Poteete and Ribot, 2011).

Previous studies have shown the importance of combinations of these factors in understanding the emergence of FAs. Britt (2002), for instance, showed how changes in forest laws and the level of democracy, networking between forest communities and external actors, and changes in the way forest issues were framed, explained the formation of the Federation of Forest Users (FECOFUN) in Nepal. And Cronkleton et al. (2008) found that the emergence of forest-based social movements in Latin America was due to the historical weakness or absence of government institutions, the imposition of policies that promoted massive development or conservation schemes excluding forest communities, a history of indigenous capacity for collective action, and external technical and monetary assistance (see also Paudel et al., 2010).

Applying the political opportunities concept to Mexico, Fox (1996) argued that successful grassroots organization was strongest in regions with low levels of state repression, alliances

with external actors such as bureaucratic state reformers and NGOs, and a history of inter-community collective struggles (see also Chapela, 1998). He identifies three distinct causal pathways to creating local-level social capital: (1) coproduction (convergence) between state (bureaucratic reformers) and societal actors, (2) coproduction between local and external societal actors (NGOs, donors, etc.), and (3) independent grassroots scaling-up. These processes can interact, with for instance grassroots organizations taking advantage of support from social capital co-produced previously with bureaucratic reformers or NGOs.

2.2.2. Micro-level context: Local political and economic struggles

From a transaction-cost perspective, networks form when the capabilities of individual organizations (in this case, communities) are considered insufficient, or the costs too high, to solve a given problem on their own (Benjamin et al., 2011; Fréchette and Lewis, 2011). Such may be the case with "wicked" environmental problems that are large, complex and cross multiple scales/jurisdictions (Benjamin et al., 2011). For instance, inter-state water compacts in the US formed to deal with problems of water scarcity and ensuing conflicts (Heikkila et al., 2011). Similar motivations have led to the emergence of transboundary conservation schemes in national parks (e.g. Schoon, 2008), and proposals for managing marine fisheries (Berkes, 2010). Networks and cooperatives of private forest landowners, meanwhile, have emerged to address new local needs for forestry services (Tiles et al., 2004; Wolf, 2011). FAs may also form to protect the resources on which they depend for their livelihoods from exploitation by external agents such as mining and timber companies or governments, and/or to influence public policies (Bebbington et al., 2008; Britt, 2002; Cronkleton et al., 2008; Martínez-Alier, 2002; Paudel et al., 2010; Seixas and Davy, 2008). Finally, cross-scale linkages may emerge in order to improve

economic conditions by pooling resources, sharing information about markets, and/or gaining bargaining power. In Brazil, for instance, a nut growers' cooperative was created to improve marketing and members' livelihoods (Paudel et al., 2010).

Yet some propose that the emergence and maintenance of cross-scale arrangements –what geographers call "re-scaling"– is better understood as the product of power, conflict, and individualistic interests (Adger et al., 2005; Norman et al., 2012; Perreault and Bridge, 2009; Reed, 2010; Thiel and Egerton, 2011). The government may strategically promote local and cross-scale collective action as a way to increase their legitimacy or gain leverage with certain groups. This is specially the case in clientelist and corporatist systems. Organizations' leaders and regional *caciques* may follow a similar logic. Top-down cross-scale linkages such as co-management arrangements in Indian forests (Nayak and Berkes, 2008), legally-mandated associations in irrigation systems in Bulgaria (Theesfeld, 2009), top-down 'regional' governance bodies in Senegal (Ribot et al., 2006), and community-based organizations in wildlife management in Botswana (Poteete and Ribot, 2011) exemplify these processes. The ensuing power struggles between actors promoting decentralization and re-centralization or different forms of cross-scale arrangements create conflictive 'back and forth' dynamics (Bartley et al., 2008; Poteete and Ribot, 2011; Wollenberg et al., 2006).

2.3. A history of cross-scale linkages in Mexico

Mexico's history shows a wide diversity of FAs which have formed for different purposes from providing political representation and forestry extension, marketing and processing services, to mobilizing electoral constituencies or protecting natural resources. The formation and evolution of these FAs has been embedded in a highly authoritarian and clientelist state

which made effective grassroots social organization difficult and fostered the formation of lasting top-down clientelist political linkages (Chapela, 1998; Wilshusen and Murguia, 2003). This state has begun to weaken and liberalize in the last two decades, substantially modifying the political and economic terrain in which FAs operate.

At the same time, FAs often responded to forest and agrarian policies which have been characterized as "erratic" (Klooster, 2003) or "cyclical" (Collier, 1987, in Haenn, 2005), alternating between decentralization initiatives to support communities and recentralization attempts to promote large-scale corporate appropriation (for cogent reviews of this policy history, see Antinori and Bray, 2005; Merino, 2011). In this context, peasants show a longstanding "culture of accommodation" to institutional changes (Wilshusen, 2010). In what follows, we provide a historical view of FAs over five different periods, paying attention to the effects of changes in macro-level political-economic conditions on these associations.

2.3.1 First phase (1930s – 60s): Centralized concessions and logging bans

The 1917 Mexican constitution granted land rights to landless peasants and indigenous communities and began a process of agrarian reform, including land redistribution. These reforms initiated by President Lázaro Cárdenas (1934-40) were accompanied by the first government initiatives for creating community-based forest cooperatives (Bray and Merino, 2004). In 1931, as governor of Michoacán, Cárdenas ended the practice of private firms contracting with communities to harvest timber and established that Michoacán's forests could only be managed by cooperatives organized by community members. As president, he promoted the creation of hundreds of these cooperatives nationwide, but their impacts on community development were few, and most dissolved (Bray and Merino, 2004: 56).

The more conservative president Ávila Camacho (1940-1946) ended land redistribution and support for community organization. Miguel Alemán (1946-1952) embraced a 'modernization' and pro-market program, a definitive break with the leftist tradition within the Institutional Revolutionary Party (PRI) to that point (Durand Ponte, 2009). As part of his industrialization policies, a forest law and a series of presidential decrees imposed monopsony power in timber production by leasing community forests first to private companies (1940s – 1960s) and then to state-controlled companies (1960s – 1980s) (Klooster, 2003; Merino, 2004: 213-214). These concessions were combined with bans on community timber harvesting in large swaths of forests. From 1959 to 1980, about 50% of Mexican forests were under concessions, with the other 50% subject to bans or short-term contracts with private companies (Bray and Merino, 2004). In total, 37 concessions were given to parastatals and 10 to private companies (Mota Villanueva, 2002). See **Table 2.1**. Under this system, communities theoretically had the right to refuse the contract offered to them, but generally accepted, with little room for negotiating (Klooster, 2003; Merino, 2004). The concessionaires were responsible for forest management plans and for paying the communities a "stumpage fee", which had no correspondence to market value. Payments were deposited into community trust fund account for local development projects. Few communities were ever able to access these funds (Bray and Merino, 2004).

Table 2.1. Timber concessions given in Phase 1 and Phase 2

State	*Parastatal**	*Private*	*Beginning*	*End*	*FA response*
Chiapas	*Compañía Forestal de la Lacandona*		1950s	NA	NA
	Triplay de Palenque		1950s	NA	NA
Chihuahua	PROFORTARA		1972	1989	ARIC-GFA
Durango	PROFORMEX		1976/78	NA	UNECOFAEZ, 1976
		Durango Lumber Company	1900s	1969	UNECOF-ES, 1968/1976
		Triplay y Maderas del Norte	1958	1977	UEGP, 1960s
Guerrero	*Forestal Vicente Guerrero*		1972	NA	UEHG, 1980
	Chapas de Triplay		1950s	NA	NA
Jalisco	*Fábricas Papel de Atenquique*		1950s	NA	NA
Mexico & Morelos		UIEF-*San Rafael*	1947	1991	UEFEZ, 1974
Nayarit	APROFON		1971	NA	NA
Michoacan	MIMICH		1961	NA	UECIFOMET-LEA, 1976
	PROFORMICH		1970s	NA	NA
Oaxaca	FAPATUX		1956 (1964 govt. ownership)	1982	UPAMP, 1967; ODRENASIJ, 1980
		Oaxaca Forest Company	NA	NA	NA
Quintana Roo	MIQRO		1950s (1959 govt. ownership)	1982	SPEFQR and OPEFZM, 1986
Veracruz	FAPATUX		1956	NA	NA

The political system had specific characteristics that facilitated political control of the peasantry, constricting the possibilities of autonomous collective action (Bartra and Otero, 2005; Chapela, 1998; Durand Ponte, 2009; Gordillo et al., 1998): (1) '*presidencialismo*' –the concentration of power in the executive branch; (2) a de facto 'one-party system' (the PRI had governed uninterrupted since 1929) which limited the scope of dissent and competing policies; (3) *caciquismo* – the control of local and regional organizations by political bosses supported by the state (see Knight, 1998); and (4) corporatism and authoritarianism. Peasant groups "were often formed at the initiative and encouragement of the state" (Bartra and Otero, 2005: 164). Autonomous associations were often expressly prohibited or discouraged; they were allowed "as long as their loyalty to the state was not in doubt" (ibid), which usually meant having to join the corporatist National Peasant Confederation (CNC). Community assemblies were overseen and approved by representatives from the Agriculture Ministry (SARH). At the same time, government supports were used to build clientelist ties (Gordillo et al., 1998; McDonald, 2001). The community sector was "a repressed peasant economy in the grips of the state" (Gordillo et al., 1998: 24).

2.3.2 Second phase (1960s – 86): Community re-appropriation of forest governance

The growing inequalities of the modernization model imposed in the 40s and 50s (Hamilton, 2011) spurred the emergence of various social movements during the 1960s and 1970s. In the forest sector, communities organized to end concessions and obtain property rights over their forestlands, which they saw as their source of livelihood (Klooster, 2003; Antinori and Bray, 2005) (see **Table 2.1**). Community members refer to this effort as "the struggle", reflecting

the bottom-up and conflictive nature of the process. By 1980, there were approximately 5000 communities owning about 65% of all forest lands, and more than 1,000 communities and 3,000 small property owners became integrated into approximately 25 unions throughout the country (Klooster, 2003). Overall, these community and inter-community organizations generated local and regional social capital that underscored the future development of community forestry and FAs (Bray and Merino, 2004; Klooster, 2003).

Two consecutive pro-peasant presidents, Echeverría (1970–76) and López Portillo (1976–1982), brought a new wave of land reform and state-supported "activism" in the rural sector (Bofill Poch, 2005; Hernández Navarro, 1992; Klooster, 2003). The 1971 Agrarian Reform Law allowed the creation of inter-community associations between communities to guarantee access to credit and organize commercialization of their products (Hernández Navarro, 1992). Some of the land struggle organizations later became producer organizations. Old clientelist leaders began to be displaced as the new economic focus required new leaders with some basic skills in economic and financial management, administration, and relations to banks and governmental development agencies (Hernández Navarro, 1992).

The government's financial and logistical support to those communities and associations also stimulated the creation of many FAs, albeit through top-down schemes. President Echeverría used the FONAFE community trust fund to organize hundreds of Community Forestry Enterprises (CFEs).[42] In addition, between 1971 and 1976 seven of the logging bans were removed (Bray and Merino, 2004). López Portillo created an office of peasant affairs within the Agriculture Ministry's Forestry Directorate (DGDF) to promote community forestry (Silva, 1997). During his tenure, the DGDF and its cadre of progressive bureaucrats implemented

[42] In the early 1960s, FONAFE created community forestry enterprises in 135 communities, 128 (95%) in Durango and Chihuahua, the two states with the largest forest reserves in the country.

a program for forestry development called "social production" ('*socio-producción*'), to continue promoting CFE development and inter-community FAs (Silva, 1997). This was still top-down but more empowering (Bray, personal communication). Yet they were also strategically aimed at quelling social unrest and shoring up political support.

Other important political openings included the political crisis initiated by protesting students in the 1960s and the 1968 Tlatelolco massacre; the first electoral defeat for the PRI in two municipal elections; and the economic crisis in the late 1970s and early 1980s, which substantially reduced the government's ability to financially support communities, FAs and other peasant organizations and consequently weakened clientelist and corporatist ties, generating opportunities for autonomous organization (Bizberg, 2003; Gordillo et al., 1998; Durand Ponte, 2009). Together, they marked the beginning of the PRI's 'legitimacy crisis' (Durand Ponte, 2009; Gordillo et al., 1998). The political crisis of the late 1960s also led to a resurgence of a leftist discourse in the PRI, an electoral reform in 1977 that allowed the participation of previously prohibited political parties, and a confluence of government support for peasants. Finally, the crisis, combined with internal mismanagement and an emerging technocratic ideology, eventually led to the economic demise of the timber concession system in the mid-1980s (Bofill Poch, 2005; interviews, 2010).[43]

Among the first FAs formed were FA-1 (see sect. 2.4.2 below), and UNECOFAEZ. UNECOFAEZ was created in 1976 in the Santiago Papasquiaro region of Durango less than two years after the concessionaire PROFORMEX began operations. P[erceived injustices] (e.g. under-payments, forest mismanagement, lack of employment) of this concession [ignited this m]ovement (interviews, 2007 and 2011). Its success was also partly due to its ability to forge alliances at the

[43] The actual end dates for each varied across states as their leases came up for renewal; Echeverría, while espousing a pro-peasant discourse and promoting land reform, actually renewed and expanded several concessions as part of his state-directed industrialization efforts (see Table 2.1).

federal level with the sub-secretary of Agriculture, bureaucrats in the Forest Department, and PROFORMEX foresters. These connections helped the organization bypass resistance from the state government, which supported PROFORMEX (Taylor, 2001; interviews, 2007, 2011). Similarly, ODRENASIJ was formed in 1980 in Oaxaca initially to demand better labor conditions in the FAPATUX concession system, and later to fight against the renewal of this concession. Progressive academics and NGOs strongly supported the formation and success of this association (Abardía-Moros and Solano-Solano, 1995). Contrary to UNECOFAEZ, however, ODRENASIJ dissolved once it achieved its objective.

These associations had a decidedly autonomous, bottom-up character that persists today (Merino, 2004), but they also had strong support from government and/or non-governmental actors (e.g. foresters, NGOs). In some cases FAs were promoted or directly created by government agencies. For instance, the SARH and DGDF facilitated the creation of several *ejido* unions, such as *Unión de Ejidos y Comunidades Indígenas Forestales de la Meseta Purépecha* (UECIFOMET-LEA) in Michoacán in 1979 and similar ones in Oaxaca, Puebla and Campeche (see Bray and Merino, 2004). In the case of UECIFOMET-LEA, the government's efforts were combined with grassroots action by some community leaders and the CNC, and with the financial support of the government's National Rural Credit Bank (BANRURAL) (Bofill Poch, 2005).

However, the political-economic conditions of the period were still relatively limiting. Clientelism, corporatism and *caciquismo* remained the norm (Durand Ponte, 2009). The use of the FONAFE funds by Echeverría did not seek to empower but to facilitate timber operations of the concessionaires, and to co-opt autonomous movements (Guerrero, 1998). In addition, most CFEs and FAs in this period were still forced to integrate to the CNC, and became politically

controlled by its representatives (Guerrero, 1998). In other cases the government created parallel, loyal unions to counteract autonomous ones (Gordillo et al., 1998). For instance, in Oaxaca the Agriculture Ministry promoted the *José López Portillo* Production Unit in 1981-82 as a strategy to stop the anti-concession movements led by ODRENASIJ (Bray and Merino, 2004; Abardía-Moros and Solano-Solano, 1995). Thus, the creation of multi-level/cross-scale governance emerged from combinations of grassroots movements, hybrid initiatives of communities motivated by the State, and top-down clientelist and corporatist strategies.

2.3.3 Third phase (1986 – 92): Community forestry and liberalization of forestry services

The 1986 Forest Law officially ended timber concessions and confirmed community rights to produce and commercialize their forest resources (Bray and Merino, 2004; Merino, 2004). Furthermore, it transferred all forestry services from government-run Administration Units (UAFs) to Forest Conservation and Development Units (UCODEFOs) operated through concessions by individual communities, FAs or foresters (Bray and Merino, 2004). These units, as the UAFs, sought to promote forest management at the eco-regional level while also serving as economic 'development poles'.

The end of concessions generated a new need for communities to organize timber production and sale, which entailed channeling and pooling resources to obtain extraction and processing equipment (trucks, sawmills, etc.), sharing information about prices, negotiating with powerful corporations, maintaining the road infrastructure (previously maintained by the concessionaires), and sustaining a political presence in policy-making. This involved adapting existing governance institutions designed to administer a community and a territory in order to administer a CFE (Antinori and Bray, 2005). FAs had to adapt to remain relevant to these new

needs. This led to the emergence of new grassroots FAs and the evolution of some existing ones from grassroots movements with a predominantly political/advocacy role into 'multi-purpose' organizations focused on political, economic and ecological issues.[44]

Community-driven adaptations to changing needs were not the only factor driving FA emergence and evolution. The role of the government (financial and political) was again essential. At the same time, and in contrast to the previous period, non-governmental actors, especially NGOs, professionals such as foresters, academics and foundations emerged as crucial actors in some instances. Consequently, most of the FAs formed in this period could be categorized as top-down, though community initiative was often also present.

Among the FAs formed during this period, one type was focused on obtaining concessions to provide technical forestry services to member communities, principally the elaboration of the required forest management plans and the related activities (e.g. reforestation and fire combat), but also broader community development and market services. The first five concessions were approved in 1988; by 1992 there were a total of 83, of which about half were given to communities and FAs and the other half to foresters (Bray and Merino, 2004). The *Sociedad de Productores Forestales Ejidales de Quintana Roo* (SPFEQR), formed in 1986 in Quintana Roo following 25 years of a timber concession, sought to provide forestry services, help communities develop their forestry enterprises, create a common marketing front to compete with the parastatal (which continued to exist in other communities), improve communities' production efficiency, access new markets, and channel resources from government programs and

[44] This transition was also situated in a context of new rural/peasant movements and organizations which shifted their main objectives from gaining access to land to generating economic benefits through strategies of 'self-management and democratic production' of agricultural and forestry resources, and more autonomous and decentralized networks isolated from clientelism and corporativism, labeled a transition 'from land expropriation to peasant appropriation' (Bartra and Otero, 2005; Fox and Gordillo, 1989; Gordillo, 1988; Otero, 2000). This transition was seen by some as the means to achieve economic self-sufficiency, which in turn would lead to political autonomy (Bartra and Otero, 2005).

international donors (Taylor and Zabin, 2000; Wilshusen, 2010). The association was created through an alliance between the state government, the DGDF and the German Agency of Cooperation for Development (the equivalent of USAID) (Bofill Poch, 2005; Bray and Merino, 2004). However, its origins also responded to the communities' previous regional collective action, including their fight against the concessionaire MIQRO (which in turn had pushed the state government to take action), and previous inter-community organizational attempts by FONAFE in the 1970s (Bofill Poch, 2005).

In Oaxaca, the *Unión de Ejidos y Comunidades Forestales de Oaxaca* (UCEFO), formed in 1984 at the insistence of the DGDF, sought to integrate its member communities into the forest management activities and to develop vertically-integrated community forestry (Lopez Arzola 2005, interviews, 2007). The organization also provided accounting services, product and input price lists, and political representation as a member of the state forest policy committee (interviews, 2007). In contrast, UZACHI, formed in 1991 as a forestry service union, and currently considered one of the most successful FAs in Mexico, may be a unique example from this period of an FA created with the support of a regional NGO, Rural Research and Advisory Services (ERA) and progressive academics (Bray and Merino, 2004).

Other communities within UCODEFO concessions formed new FAs called *permisionario* unions more narrowly focused on obtaining the forestry service concessions. Contrary to some of the forestry-service *ejido* unions, which combined government and community initiatives, most *permisionario* unions retained the top-down management style of the UAFs because of the strong role of government and foresters in promoting them (Merino et al., 2008), and were susceptible to elite capture by these foresters, as Chapela (1998) found in eastern Michoacán.

A second type of new FA focused on the economic aspects of community forestry through increasing market power, investing in physical capital, sharing information, and improving regional infrastructure. A few of these organizations went further to become producer cooperatives, among the first being FA-1 (sect. 4 below) and UNECOFAEZ in Durango. UNECOFAEZ developed a price list and monitored timber contracts between communities and firms (interviews, 2007; Taylor, 2001). The Union also developed a timber processing branch using the infrastructure they obtained from the concessionaire PROFORMEX, as part of an agreement with President Salinas de Gortari in 1990. However, in contrast to FA-1, UNECOFAEZ created a separate organization (SEZARIC) to manage the timber processing operation (Taylor, 2001). Currently UNECOFAEZ also owns an industrial machinery center for repair and manufacture, a tree nursery, an agricultural collection center, and a water purification and bottling company. The role as political representative continued but mostly focused on channeling resources for community forestry, infrastructure or basic needs (Taylor, 2001). Other organizations like a credit association and UECIFMOET-LEA in Michoacán (Bofill Boch, 2005), a rural collective interest association grouping seven *ejido* unions (ARIC-GFA) in Chihuahua (Bray and Merino, 2004), and the Chingahuapan *ejido* union (UECH) in Puebla followed the producer cooperative model and established inter-community sawmills. Unfortunately, most of these did not last due to mismanagement, either from corruption or lack of appropriate knowledge and capacity, or the economic transition of the 1990s.

"Road committees" grouping communities and private landowners also emerged in this period, often promoted by the CNC and by *ejido* unions, to pool resources and channel government funds to provide maintenance repairs to the road infrastructure as a strategy to reduce transportation costs (interview, 11-30-2010).

Finally, in the mid-1980s, third-level organizations (i.e. associations of associations) started to form at the national level through parallel grassroots and government-directed efforts (Chapela, 1998). From the top-down, the corporatist CNC created the *Unión Nacional de Organizaciones Forestales* in 1986. From the bottom-up, a crucial actor was the National Union of Regional Autonomous Peasant Organizations (UNORCA), formed in 1985 in an attempt to break the monopoly over peasant organization held by the (Gordillo, 1988). An offspring of UNORCA was the MOCAF Network (formed in 1991), a non-partisan, pluralist coalition of forestry NGOs, forest production-oriented organizations, communities, and small landowners offering technical assistance, training, design and evaluation of productive projects, environmental studies, participation in related policy-making, and resource-channelling. These FAs provided regional associations with an increased presence in the national policy and political arena.

2.3.4 Fourth phase (1992 – 2000): Neoliberalization and capacity-building

The community forestry boom would not last long. Towards the end of the 1980s and beginnings of the 1990s, community forestry fell in contradiction to the modernization and economic neoliberalization efforts started during de la Madrid's presidency (1982-88) and which intensified dramatically under Salinas de Gortari (1988-94). These policies were part of a broad structural adjustment program imposed on Mexico by the International Monetary Fund (IMF) given Mexico's default on its debt servicing (Durand Ponte, 2009).[45]

The Salinas de Gortari administration implemented three key reforms which accommodated forest communities t its neoliberal vision and affected FAs directly and

[45] This program echoed others that swept across Latin America and other developing regions in the 1980s and which threatened cooperative organizations' "competitiveness and, in many cases, their survival." (World Bank, 2008: 138).

indirectly: the 1991-92 constitutional reform, the 1992 Forest Law and the signing of the North American Free Trade Agreement (NAFTA) in 1994.

The reform of Article 27 of the Constitution and of the Agrarian Law ended land redistribution (i.e. the formation of new *ejidos*), opened the way for privatization of community land and liberalized the land market. Communal property was seen as an obstacle for the industrial development and capitalization of the forest sector, as community enterprises were seen as inefficient (Bofill Poch, 2005). While communal resource stock such as forests still cannot be divided, Article 75 of the Agrarian Law allows community members to form 'work groups' separate from the community's traditional decision-making structure (the general assembly and the *comisariado*) to manage timber extraction, transport, and commercialization (Taylor, 2001:129; Wilshusen, 2005: 129). This model has been widely adopted in Durango (Antinori and Rausser, 2010; interviews, 2010). The reform also removed many of the State's political controls over peasant communities, especially the intervention of the Agrarian Reform Secretariat, and sought to loosen the grip of local caciques by allowing *ejidatarios* more freedom of movement outside the ejido while maintaining ejido rights.

The 1992 Forest Law privatized forestry services, eliminating the UCODEFOs and the associated government subsidies. Communities could now select any certified forester, and foresters could work in any given region. This increased competition from new private foresters often offering lower prices. As a result, many forestry service FAs lost members and some disintegrated. In Durango, for instance, only three out of the 14 original *permisionario* unions remain, and only two could be said to be functioning (interviews, 2010). Membership loss was often related to issues of heterogeneity, with the largest members being the first to leave to establish their own exclusive forestry services (Bray and Merino, 2004). This was the case of

UCEFO in Oaxaca (interviews, 2007) and UECIFOMET-LEA in Michoacan (Bofill Poch, 2005). The 1992 Law also substantially reduced financial support for community forestry, shifting subsidies to promote private timber plantations (Bray and Merino, 2004; Klooster, 2003; Silva, 1997); and eliminated regulations related to the monitoring of forestry activities, leading to substantial increase in illegal logging, intra-community conflicts, and economic losses for community enterprises (Bray et al., 2006; interviews, 2010).

NAFTA removed tariffs on timber imports which had been gradually reduced since the 1980s (Jaffee, 1997). The forest and agricultural sectors were not ready to compete with the much more industrialized and heavily subsidized Canadian, US, and Chilean corporations. In Michoacán's forest communities from 1990-1994, timber profits dropped, harvesting increased, and jobs were lost (Jaffee, 1997). These impacts continue to date (see next section). The 1994 peso devaluation and the consequential increase in interest rates had further impact on FAs. Most associations did not have financial insurance against price declines or inflationary processes, and as a result they lost their patrimonial capital and eventually dissolved (Bartra and Otero, 2005; Gordillo, pers. comm., 2009). For instance, the Chignahuapan *ejido* union (UECH) in Puebla had to use all of the revenues from its timber sales for six straight years to pay back the suddenly-increased debt on the sawmill it had acquired one year before (Bray and Merino, 2004).

The impacts on FAs of these political-economic changes have been mixed, reflecting the contradictions between political and economic liberalism embedded in the reforms (Gordillo et al., 1998). On one hand, a more autonomous community governance system (Gordillo et al., 1998) and an "unprecedented combination of communally-organized forestry and smaller local associations" (Wilshusen and Murguía, 2003) emerged. This was supported by the so-called "social contract" created by Salinas de Gortari, which promoted the coexistence of oppositional

groups at the local level in exchange for support to the national neoliberal agenda (Bartra and Otero, 2005; Rubin, 2003). The then-SEDESOL director (C. Rojas) was the face of much of this support and was described by an FA leader as "the father of [peasant] organizations." (interview, 11-10-2010)[46] At the national level, Salinas de Gortari promoted the National Union of Communal Forestry Organizations (UNOFOC) in 1993, with the participation of some of the most powerful grassroots organizations at the time, including UNECOFAEZ (which had previously been affiliated to UNORCA and Red Mocaf) and the San Juan Nuevo community in Michoacán. Such affiliations had financial payoffs –UNOFOC later captured 80% of the resources from the 1995 National Reforestation Program (PRONARE) and gained privileged access to entities like the World Bank, becoming the 'official' interlocutor of the community forestry sector (Bofill Poch, 2005).

On the other hand, the reforms directly and indirectly undermined the nascent community forestry sector and related organizations (Taylor, 2001; Wilshusen and Murguía, 2003). As Merino (2004:195, translation our own) concludes: "the agrarian communities obtained more autonomy, but they also became more abandoned". At the same time, new forms of political patronage were created to maintain control over rural communities, one of the most visible being Salinas de Gortari's National Solidarity Program (PRONASOL) (Dresser, 1994; Magaloni et al., 2002). Moreover, associations faced continued pressure to maintain their autonomy and self-management capacity *vis a vis* the national peasant organizations and political parties (Wilshusen and Murguía, 2003), and many resources were captured by organizations which maintained clientelist linkages or created new ones (e.g. McDonald, 2001). UNOFOC, for instance, was a clearly clientelist model which sought to marginalize oppositional groups such as the MOCAF Network.

[46] All interview references follow the month-day-year format.

Many existing FAs tried to adapt to this new context in multiple and often contradictory ways, generating new organizational forms. Wilshusen (2010) finds that SPEFQR in Quintana Roo has engaged in a set of highly creative 'accommodations' which include hybrid discourses that integrate efficiency and entrepreneurialism with traditional peasant ideals of 'collectivism'; the subdivision of some community lands while retaining others under communal ownership; and the formation of intra-community work groups. Similar adaptations are observed in the case of UNECOFAEZ (Taylor, 2001; Taylor and Zabin, 2000). These adaptations have spurred new challenges for FAs. For example, in UNECOFAEZ and SPEFQR work groups have led to a rise in the costs of forestry services (ibid). In UNECOFAEZ, there were also tensions regarding some work groups' demands to have their own representation, separate from their communities', on the association. In our fieldwork, interviewees indicated that work groups have made collecting membership and forestry service dues more difficult. The entrepreneurial focus has led UNECOFAEZ to depend on its ability to generate profits in order to maintain legitimacy. When interviewed, the current leaders of the union recognized this crisis and tied it to the union's lack of control over its processing and commercialization venture (SEZARIC), as well as lack of funding (interview, 10-05-2011).

The transition from political to multi-purpose associations in turn created new challenges. For the political associations of the 1960s and 1970s, the heterogeneity of communities was not a major issue. Having more members gave the organizations more political clout, and the services provided were the same regardless of each member's characteristics. However, in the new organizations, services required by each member community and the prices for these varied. The larger communities, who paid more, wanted more services and more decision making power, while the smaller communities wanted to maintain low prices and felt excluded from decision-

making. Many associations lost their largest members (Bray and Merino, 2004); some disintegrated as a result, as was the case with UECIFOMET-LEA in Michoacan (Bofill Poch, 2005).

Meanwhile, as a direct response to the problems of illegal logging fostered by the 1992 forestry law, and the increasing globalization of environmental/conservationist NGOs and discourses, communities formed new grassroots movements and associations concerned with deforestation and environmental conservation. In some regions, communities and private landowners created anti-illegal logging committees, such as the ones in the Chingahuapan region in Puebla (Bray and Merino, 2004), and in the sierra of Durango (see FA-2 in sect. 2.4.2.3 below). In Guerrero's Costa Grande Region, two FAs, the so-called 'ecologist peasants', were created to struggle against the operations of US timber corporation Boise, heavily promoted by the then-governor. The anti-concession movement faced heavy persecution by the state and private mafias, with leaders jailed and dozens of members massacred (Ross, 2000). In addition, a local *cacique* formed an *ejido* union in collusion with Boise Cascade to support the concession (Ross, 2000). However, a strong leadership and alliances with national and international human rights and environmental NGOs facilitated the movement's success, leading to the Governor's resignation and Boise Cascade's exit in 1998.

A similar case is the CNDCHIM in Chiapas formed in the early 1990s to protest a proposed road in the Chimalapas region, a sensitive ecological area; and for the resolution of land conflicts, the revocation of extraction permits to two large timber corporations, and the establishment of a community-managed protected forest area (Umlas, 1998). The emergence of CNDCHIM was facilitated by the support of the then-director of SEDESOL and the government's vulnerability as it faced international (especially US) scrutiny on its environmental

policies before entering NAFTA. This was combined with the organization's ability to recognize this opening and act upon it effectively using connections with government agents and with national and international NGOs while drawing on previous community and NGO mobilizations against illegal logging in the region (Umlas, 1998).

Towards the mid-1990s, the problems associated with the Salinas reforms led to strong pressures from an alliance of forestry-sector stakeholders to revert some of the institutional changes and increase support for the forest sector. The government of Zedillo (1994-2000) thus began a renewed support for community forestry and FAs. The first measures were the creation of the Environment Ministry (SEMARNAP) in 1995 and the appointment of an environmental activist and researcher to head the agency (Silva, 1997). Later, a new Forest Law in 1997 increased regulations of extraction activities and proposed more supports for community forestry (Bofill Poch, 2005) through the creation of two extremely programs to support community forestry– PRODEFOR and PROCYMAF. PROCYMAF was created with a $15 million loan from the World Bank exclusively to support community forestry, with a particular focus on local social capital. It initially ran from 1997 to 2003 (later extended from 2004 to 2007 with an additional $20 million loan) and covered the states of Oaxaca, Guerrero and Michoacán, Jalisco, Durango and Chihuahua. PRODEFOR's objective was to expand the forest area under management (timber harvesting) and help develop community forestry enterprises and regional timber production chains. Despite that few of the resources of these programs went directly to FAs, the social capital build-up and the new spaces of collaboration and exchange between communities also strengthened regional governance.

In some cases, international agencies and donors such as United Nations Development Program (UNDP) and the Global Environmental Fund (GEF), as well as NGOs, filled the

financing gap FAs. For instance, in 1997 twelve NGOs in Yucatan formed the Sustainable Development Network (ROSDESAC) with the help of a UNDP-GEF Small Grants program (Wilshusen and Murguía, 2003). The interventions of these non-state actors were furthered by the increasing democratic openings in the country.

2.3.5 Fifth phase (2000 – present): Recentralization of control over forest resources?

The 21st century began with substantial problems related to continued deforestation, with about 500,000 hectares lost per year between 1993 and 2000, a rate of 1.0% for pine-oak forests and 2.1% for tropical forests (Velázquez et al., 2002). Overall, the country had lost half of its original forest cover (ibid). There were also problems of declining timber production, an increasing trade deficit in wood (+133% between 1997 and 2006) and a perceived 'lack of organization' of forest communities (CCMSS, 2007; CONAFOR, 2001). In the political sphere, the PRI suffered in 2000 its first electoral defeat in presidential elections in 70 years, with the victory of V. Fox (2000-2006) from the conservative National Action Party (PAN). To some, this represented "the end of an era of authoritarianism and corporate politics" (Castañeda, 2003: 1), though the changes were slow, uneven and contradictory (Tulchin and Selee, 2003).[47] Rural conditions spurred the formation of grassroots social movements, epitomized by The Countryside Can Bear No More movement, an alliance of peasant and forestry associations which demanded increased support for peasants (Bartra and Otero, 2005). This led to a series of agreements signed by President Fox.

Fox sought to provide new impulse to the forest sector by creating the National Forest Commission (CONAFOR) in 2001 as the central agency in charge of the sector. Following the

[47] In fact, others (e.g. Middlebrook, 2004; Rodríguez Araujo, 2009) argue that the Mexican political system has not changed much.

agreements signed, he increased the budget substantially for CONAFOR's signature forestry programs (PROCYMAF and PRODEFOR). He also created two innovative programs: the Payment for Environmental Services (PSA) program, and the Community Biodiversity Conservation (COINBIO) project. By the end of the Fox administration in 2006, CONAFOR's budget was 2,326 million Mexican pesos, an increase of 878% from 2001 (Merino, 2011). This yearly increase continued in the administration of F. Calderón (2006-2012). In 2010, the CONAFOR budget was 6,570 million Mexican pesos, representing an increase of 3,200% over the decade (*Milenio*, 04-04- 2011).

In addition, in 2003 the federal Congress passed a new Forest Law (LGDFS, 2003), which mandated CONAFOR to create Regional Forest Management Units (UMAFORs) within each state and sought to promote regional-level collective action (Merino et al., 2008). These UMAFORs were supposed to be delimitated based on 'micro-watersheds' in each state. National CONAFOR officials made recommendations and then each state's CONAFOR offices 'validated' them with other stakeholders before implementation (interviews, 2010). Within each UMAFOR, CONAFOR was mandated to 'generate 'self-managing structures of forest users at a local level', and to 'strengthen the organization and participation of forest users in decision-making.'

CONAFOR started the Program for the Strengthening of Self-Management of Forestry (PROFAS) in 2004 to provide support for FAs at the regional, state and national levels. This policy shift was quite significant. The model intentionally harked back to the UCODEFOs of the 1980s and the *permisionario* unions that operated within them; the objective was to return to some form of regional-level collective action processes for forest management. This was also the

first time since the 1970s and 1980s that the government developed a program directed at supporting FAs.

Unfortunately, in practice CONAFOR used PROFAS to mostly fund new associations, which it called regional *silviculturalist* associations (ARS) (Martínez Tenorio et al., 2005; Merino et al., 2008). CONAFOR wanted each ARS to operate within a specific UMAFOR, and to be integrated in a pyramidal structure into state-level organizations (AES), in turn grouped into national organizations (see Martínez Tenorio et al., 2005; Merino et al., 2008). These associations had to include both communities and private landowners, and were expected to perform an extensive list of activities.[48] *Ejido* unions were not recognized as valid associations in PROFAS, as they only included communities.

In many instances, ARS were created to capture CONAFOR funds and dissolved after a few years, or were unknown to most communities (Merino et al., 2008). By 2007 CONAFOR shifted its policy of supporting all possible FAs within each UMAFOR and decided it would fund only one association per UMAFOR labeled as the "official" regional association. The other FAs within an UMAFOR –including pre-existing ones– were labeled "local" associations and were excluded from funds, from decision-making bodies like the state forest councils, and from other collective action groups like the state-level associations (AES) (Merino et al., 2008; interviews, 2010). The policy was widely perceived as an attempt to shore up support in rural areas for the governing PAN and marginalize and destroy pre-existing FAs traditionally associated to the PRI (Red Mocaf et al., 2005; interviews, 2010).

Nevertheless, the impact of this policy has varied depending on the regional and state level conditions. In Durango and Oaxaca, Merino et al. (2008) found that the new ARS are more

[48] These include silviculture, conservation and restoration; prevention, combat of forest fires, plagues/diseases, and illegal logging; production of plants; and presenting periodic reports. See Art. 112 of the LGDFS.

active and consolidated because they built on a long history of grassroots collective action, and because the states' CONAFOR offices were led by people closer to communities and with more autonomy in the implementation of PROFAS. In Oaxaca, the delimitation of the UMAFORs respected the social boundaries of the existing FAs, in great part thanks to the mobilization by these FAs and the support of S. Anta, the state director of one of the CONAFOR programs.

Durango was one of the most active states in adopting the policy, dividing the state into twelve UMAFORs. The boundaries of these regions proposed by CONAFOR were negotiated at the state level with foresters so that the pre-existing boundaries of forestry services would not be disrupted (interview with CONAFOR official, 07-06-2010). At least one ARS per UMAFOR formed. Some are completely new and others are existing organizations which changed names and structure. The 'official' ARS are incorporated into a state-level association. Foresters were central in this process, as they heavily promoted, and oftentimes directly created, the associations based on the communities they service (interviews, 2010). In the field, it was common to hear people refer to these FAs as 'X forester's association' (see Chapter 4). Their top-down nature was evident in interviews with CONAFOR officials who stressed that *they* had created the associations. Their bylaws were developed based on a standardized model provided by the agency; communities felt they had little autonomy to change them. As an FA leader emphasized during a meeting with an NGO when the need to modify their bylaws came up: "But it was CONAFOR who did our bylaws, so if we change them, what would happen with CONAFOR? Because in any case it [CONAFOR] is our father." (focus group, 11-04-2010)

Some of these top-down FAs had a very short duration, as expected. In those cases, foresters or political bosses appropriated most of the funds (interviews, 2010). In other regions the program led to permanent divisions of existing associations or to the creation of parallel

organizations. For instance, UNECOFAEZ's membership was split into five UMAFOR. Consequently CONAFOR and the region's foresters pressured UNECOFAEZ to create five parallel associations. According to interviews, this, combined with poor leadership, has substantially weakened the organization. The forced transition into ARS has brought internal conflicts in some associations and resentment towards the federal government. Nevertheless, as the PRI has maintained Durango as its political bastion, the associations' leaderships have retained strong links to that party, rather than forging alliances with the PAN as was intended.[49] Meanwhile, national FAs resisted CONAFOR's policy of supporting only *silviculturalist* associations and as a result the 2011 version of the program explicitly supports all types of FAs.

In the economic realm, free trade policies continued in this period with the signing of the Mexico-Chile Free Trade Agreement, which further facilitated the dumping of cheap wood on the Mexican market. The recent global economic crisis has also influenced FAs. A sense of crisis pervaded many of our field interviews concerning the forestry sector and rural life in general. Forest communities are much more cash-strapped than before, and consequently have a hard time paying their FA membership dues. Prices for Mexican communities' timber have either remained constant or decreased, even as production costs have risen substantially. Recent studies show that between 1997 and 2010 there has been a significant decrease in the number of communities which sell sawn wood products and a consequent increase in those selling logs or not selling wood at all (see Antinori and Rausser, 2010; Merino and Martínez, 2011). Price lists, one of FAs' main activities in the 1970s and 1980s, have disappeared in most regions, reflecting disorganization among members and a shift in the balance of powers from communities to buyers, which currently set prices. Interviewees also perceived that the new economic and political context has reduced FAs' political power and organization. In addition, drug-related

[49] The leaders' linkages to the PRI are discussed in more detail in Chapter 4.

violence has affected timber and non-timber forestry projects (e.g ecotourism) as well as collective action in some regions. In Durango, some FAs have had to re-locate their meetings away from the forest region into major cities while some communities have suspended them altogether.

Despite these top-down processes, several factors have created opportunities for new bottom-up FAs to emerge: (1) international and national policies such as the emerging markets for certified products (e.g. sustainable timber, organic and fair trade farming) and the national PSA (environmental services) program; (2) evolving member needs, particularly regarding diversification; and (3) increasing interventions of national and international NGOs –partly facilitated by increasing democracy– which have equilibrated the balance of powers, providing funds and promoting the increased participation of rural actors.

Oaxaca provides three interesting yet contrasting examples; in all of them, grassroots community action is combined with a diverse set of non-governmental and governmental allies. The first is the *Communal Forest Integrator of Oaxaca* (ICOFOSA), recently constituted by three forest communities as a production and marketing cooperative organization with its own furniture brand[50]. All three member communities are FSC certified, have their own sawmills, and have specialized managers running their companies. New members are accepted only if they follow this model. The organization receives economic and logistical support from two global environmental NGOs. This could be characterized as part of a new wave of FAs expanding into the finished and certified products markets.

[50] See http://www.tipmuebles.com/, accessed April 21, 2011.

The second and third are examples of emerging environmental services and conservation-oriented FAs.[51] One is *Community System for Biodiversity* (SICOBI), formed in 2001 from the initiative of a local environmental NGO and several national NGOs in collaboration with five forest communities. SICOBI seeks to develop its members' technical capacities and their timber and non-timber enterprises, establish networks across regions, provide legal advice, and establish regional environmental services programs.[52] They promote forestry, conservation, agroforestry and sustainable shade coffee production. The other is the *Natural Resources Committee of Chinantla Alta* (CORENCHI), created in 2005 by six communities after several years of interventions by six national and international NGOs throughout the 1990s and funding from CONAFOR's environmental services program, the US government, and the Global Environmental Fund (Bray et al., 2012). The FA focuses on developing community statutes for resource management, community protected areas, and a common environmental service payment scheme in the region's watershed.

2.4. Cross-scale linkages in perspective: Results from survey data and four case studies

2.4.1 Survey Data

In 2007, we completed fieldwork in Durango and Michoacán for a community forestry database (see Antinori and Rausser, 2010). A total of 41 forest communities based on a random stratified sample were surveyed, 28 in Durango and 13 in Michoacán. Interviews with community level authorities indicated that most (32 or 78%) communities were currently members of an FA, and about half of those were in more than one, for a total of 46 memberships

[51] Similar examples include an ecotourism association in Durango and an ecosystem service payments FA in Quintana Roo (interviews, 2010, 2011).
[52] See http://www.sicobi.org.mx/, accessed April 26, 2011.

in 21 separate FAs (see **Table 2.2**).[53] Durango communities are significantly more likely to hold FA membership than those in Michoacán.

Table 2.2. Forestry Associations in two Survey Samples in Durango, Michoacán & Oaxaca

Name	Year formed	TD/BU	# members	# comms. in survey*	Main service	Meetings/ year
DURANGO (from 2007 dataset)						
UPUCODEFO4-LVM	1966	BU	181**	1	Forestry services	1
UNECOF-ES	1968	BU	24	3	Politics/policies, Resource channeling	12
UPUPSE-ES	1970	TD	28**	4	Forestry Services	3
UNECOFAEZ	1977	BU	72	8	Market search, Legal advice, Nursery/Greenhouse	6
UECSG	1989	BU	12	3	Resource channeling	1
SEZARIC	1990	BU	40	7	Timber harvesting and processing	3
Road committee-SP***	1992	NA	NC	1	Road building, maintenance and improvement	6
UEGS	1993	BU	8	1	Resource channeling	6
UNECOSID	1994	BU	12	1	Forestry services	4
ARS-H	1995	BU	7**	1	Road repairs/maintenance	6
UMAFOR-ND	2003	TD	18**	5	Conservation, restoration, reforestation	2
ARS-T	2005	TD	4**	NA	Forestry services	0
APROFONOR	2005	TD	59**	2	Resource channeling	4
ARS-SMC	2006	TD	29**	2	Resource channeling	3
MICHOACÁN (from 2007 dataset)						
UEJMMP	1965	BU	9	1	Broomstick commercialization	6
UPFU	1978	TD	12	1	Forestry Services	3

[53] The number represents a lower limit, as we later learned that some communities were not aware that they were members of new top-down associations. The analysis presented here does *not* include the Oaxaca FAs.

Name	Year formed	TD/BU	# members	# comms. in survey*	Main service	Meetings/ year
UPFLMP	1986	BU	13	1	Forestry Services	12
UMADFOR-CH	1990	TD	30	1	Forestry Services	6
UMADFOR-SN	2003	TD	9	1	Forestry Services	
CRFC	2005	TD	13	1	Conservation, restoration, reforestation	NA
ARS-MT	1994	TD	95	1	NA	4
OAXACA (from 2000 dataset)						
IXETO	1989	NA	4	2	Forestry Services, Timber processing (Sawmill)	12
MIXTZA	1989	NA	4	4	NA	0
UCEFO	1984	NA	5	1	Forestry Services	10
UZACHI	1992	BU	4	3	Forestry Services	12
YUCUTACO	1989	NA	5	3	NA	0

*Some communities in >1 FA.

** *Silviculturalist Associations* and *Permisionario Unions* have private landowners and communities as members

*** There are several other road committees which we know about but were not captured in this survey

Based on interview responses concerning motivating forces in the FAs' formation, we coded FAs as either "bottom-up" (BU) or "top-down" (TD). Ten of the twenty-one FAs (48%) originated though a bottom-up process. This is a surprising finding given the history of strong state intervention in Mexican community forestry. Statistical analysis revealed that bottom-up organizations are older (statistically significant at 5%), while almost all of the organizations since 2000 are top-down. This reflects the effect of the UMAFOR/ARS policy and the PROFAS program discussed above. We also found that 13 communities (32%) participated in anti-concession movements, that all of them are currently in FAs, and that they are significantly more likely to be in a bottom-up organization than communities which did not participate in these movements (data not shown). These results highlight the conflictive origins of many FAs and the importance of previous histories of collective action as a basis of social capital for future action,

as Antinori and Rausser (2008) also found in Oaxaca. In this case, we see that previous history of collective action is an important condition for cross-scale/multi-level governance.

To analyze what services FA provided, in order to understand the causal factors in inter-community collection action, we also created categories of types of services through a principal component analysis (PCA).[54] Of the 14 services mentioned by interviewees, the analysis retained five distinct components: (1) political representation, legal assistance, and channeling resources/funds; (2) capacity-building, environmental protection, and tree nurseries; (3) radio communication and road maintenance; (4) accounting services, commercialization, and extraction; and (5) professional forestry services. These services vary according the FAs' date of formation. Component 1 (political representation) has a negative and significant pairwise correlation with year of FA formation (rho= -0.62) consistent with the early impetus for FAs. In other words, FAs from earlier periods (1960s-1986s) tend to be more centered on politics. Component 2 (environmental protection and capacity-building) correlates positively and significantly with year, consistent with the observed focus on environmental issues in the current phase (2000s-present).

Finally, the services offered by FAs reflect their origins (bottom-up or top-down). Components 2 (environmental protection and capacity-building) and 5 (forestry services) correlate positively and significantly with top-down FAs, consistent with the observations that forestry-service FAs were mostly created by the initiative of the government and foresters. Components 1 (political representation) and 4 (accounting, commercialization) correlate positively and significantly with bottom-up FAs, consistent with the grassroots-led impetus in the 1970s and 1980s to appropriate the timber production process. In other words, top-down FAs

[54] PCA is a technique that groups potentially correlated variables into uncorrelated variables.

focus more on ecological aspects, while grassroots FAs have a stronger emphasis on political and socio-economic issues.

2.4.2 Case Studies of four FAs in Durango[55]

Drawing on the original dataset, the study selected two top-down and two bottom-up associations for closer inspection. Information was gathered during one year of fieldwork through interviews with FA leaders and other stakeholders (community leaders, government agents, etc.), focus group discussions with community members, and participant observation of FA and government meetings and other related activities. The four associations are labeled FA-1 thru FA-4. FA-1 and FA-2 represent the bottom-up associations, and FA-3 and FA-4 the top-down ones. They span four of the policy phases identified above: 1960s-1986, 1986-1992, 1992-2000, and 2000-present. **Table 2.3** summarizes these basic characteristics.

Table 2.3. Basic characteristics of 4 FAs in sample

Name	Year	Phase	Origins	Previous experience	Members
FA-1	1968	2	BU	Anti-concession and land grants movement	*40 coms**, 33 pp** (77 tot)
FA-3	1986	3	TD	*Ejido Union* (75'); UAF/UCODEFO (78'/86')	*10 coms*, 178 pp (188 tot)
FA-2	1994	4	BU	*Ejido* Union (83'); *Permisionario* Union (86')	*12 coms* (12 tot)
FA-4	2003	5	TD	*Ejido* Union (98'); *Permisionario* Union (86')	*13 coms*, 8 pp (21 tot)

* coms = communities

** pp = private (smallholder) properties

[55] Unless otherwise noted, the material in this section comes from interviews carried out by García-López in 2010.

2.4.2.1 Anti-concession and production-oriented FAs (phase two): FA-1

FA-1 formed in 1968 after several years as a social movement to resist low timber prices paid by the concessionaire (here referred to as the 'Company'), and to promote the development of community-owned forestry enterprises, in what several interviewees described as the 'liberation struggle'. The Company had bought hundreds of thousands of hectares as part of president Porfirio Díaz's industrialization plans in the early 1900s. The Company also operated within community lands, were it paid meager amounts.[56]

In the 1960s, things started to change. The support for land distribution and community forestry by the federal government in this period was taken by local peasant leaders from the CNC as an opportunity to weaken the Company. Almost half of the region's communities were created between 1960 and 1970 (Hernández, 2005). By the mid-1960s, the Company had lost more than half of its forest land (Luján Castañeda, n.d.; interviews, 2010). Three of the region's largest communities formed the first community forestry enterprises in the country in this period (Bray and Merino, 2004). The Company responded by entering into individual contracts with communities, and taking advantage of the little knowledge communities had of the permitting process, it kept most of the

The Company's low payments led several communities to try to sell timber to other buyers. The Company, Governor Dupré Ceniceros (1962-66) and the Mexican Workers Federation (CTM), which represented the Company's workers, opposed the move, arguing that it risked the Company's workforce. Communities sought the intervention of the CNC, which provided access to federal echelons of power within the government-party structure, bypassing opposition by the state's governor, lawmakers, and the federal Secretary of Agrarian Reform. Eventually FA-1 gained the support of the new governor, Rodríguez Solórzano (1966-68), the Secretary of

[56] $90-120 pesos per thousand cubic feet compared to the market price of $3000 pesos in the 1950s. .

Agriculture, and the President. This gave FA-1 substantial political power. These two processes eventually created a scarcity of raw materials (timber) for the Company (ibid; interview, 03-29-2010). A second factor was the beginning of the Mexican Social Security program in 1958, which substantially increased the Company's operating costs (ibid). As the Company struggled economically, the payments to communities and workers became delayed, and discontent increased.

At the same time, oral histories highlighted the importance of a shared sense of region and solidarity that pervaded the movement. Equally important for the FA's success was the framing of the concession system as an 'injustice' and of the movement as an attempt to 'liberate' the communities from the oppression of that system. The logic was simple and convincing: if the communities were the owners of the forests, then the fair thing was for them to reap the benefits. The lack of transparency of the concession system –the Company managed the communities' permits– was an added component of this perceived injustice. This discourse eventually was adopted by the higher levels of the government, giving state support to these ideas and consequently 'legitimizing' them. In a 1976 speech in the region, President Echeverría declared that "The forests of the country should be reaped for the benefit of the communities" and one of his top aides argued that the private and state-run timber concessions "continue to marginalize the peasants owners of the forests from decision-making and sometimes from the economic benefits of the exploitation of forest resources." (Echeverría and Gascón Mercado, 1976: 3)

While the main initiative for the formation of FA-1 came from a grassroots movement, the political-economic context in which the association emerged implied that this support was given in exchange of incorporation into the state structure. In fact, after a few years of having formed, the government argued that the organization was illegal because its initial structure was not

recognized in any law, and forced it to reconstitute into a legally-recognized *ejido* union and to integrate into the CNC. FA-1 thus became formally integrated into the political machinery of the PRI.

One of FA-1's first actions was to create a price list of different classes of wood products and wages. The prices represented the minimum any community within the union could accept for their products and labor; all communities committed to selling at this price. Another of FA-1's initial actions was establishing a sawmill and timber marketing service in the 1970s to purchase raw material from their member communities, process and market it, then distribute profit-shares to members. In the 1980s the association also established a tree nursery for communities' reforestation activities. Unfortunately, after a few years these projects went bankrupt due to corrupt and inefficient administrators.

In 1970, the government took over authority over forestry services with the creation of a Forest Administration Unit (UAF). This unit eventually became a *permisionario* union after the 1986 forest law, which has operated in parallel to FA-1 and took over the administration of FA-1's tree nursery. The *permisionario* union initially covered all of the region's communities, but since the privatization of forestry services in 1992 it has lost the region's largest communities, which now have their own individual foresters.

By the 2000s, FA-1 was facing strong internal divisions between the small-and-poor and large-and-wealthy communities. In this context, with the beginning of the PROFAS program, and under CONAFOR threats to exclude FA-1 and its member communities from all forestry programs, the organization split into two new associations (ARS). In 2007, again under pressure from CONAFOR, which had decided it wanted one ARS per region, and the guidance of a strong regional leader, the two FAs merged into one. This transition has generated strong resentment

among some members.[57] In addition, the forced integration of new members (private landowners and some communities) has been problematic, because many of these new members rarely attend meetings. Consequently, the association faces difficulties in constituting quorum for assemblies, showing a decline in capacity for collective action.

2.4.2.2 Top-down forestry services (phase three): FA-3

FA-3 originated in 1989 as a *permisionario* union to provide forestry services within a given region (UCODEFO). Between 1958 and 1978, part of the region had been under a concession to a private timber company. In 1978 the concession ended as a combined result of an anti-concession movement, internal company mismanagement, and increasing management-labor conflicts. The government then created government-run forestry services (UAF). The creation of these forestry services fostered local social capital and technical know-how through capacity building courses and networking within and between communities within the region.

The 1986 Forest Law brought strong promotion by government agents to create the *permisionario* union. The perception among communities was that the creation of an FA was legally mandatory. The organization was also motivated by discontent with the forester that directed the region's UAF, and the leadership of communities and smallholders and a forester who was second in command in the UAF. The forester had a strong hand in the creation of the organization, partly motivated by the possibility of becoming forestry services director himself, a position he reached in 1990 and held uninterruptedly until 2010. The previous collective action experience with the anti-concession association was also important, as it not only established regional links but also provided a venue for emerging leaders –FA-3's first president had been

[57] The *ejido* union still exists on paper and has an elected leader but is not operational. In 2011 there was talk of 'reactivating' the union but it did not materialize.

one of the founding leaders of that previous association– as well as for initial investments in infrastructure.

In 1990, the Union's members created a regional road committee. Later, the Union successfully lobbied for the paving of the region's main road and the electrification of some areas. Meanwhile, FA-3's forestry services, which have been described as the best in Durango and among the best in the country, have evolved today into a large cooperative economic enterprise which has three tree nurseries producing over one million pine plants a year for members' reforestation activities and for sale to others. The organization also has five fire watchtowers, the most of any region in the state, organizes and equips fire brigades in every community, and has a radio communication system that helps in emergencies and to share information quickly and inexpensively. According to the leaders, these services not only improve forest management (see Chapter 3) but also help resolve members' needs in a less expensive and more functional manner. Closely related to the forestry services is the role of FA-3 as intermediary to lobby for and channel resources from forestry, agriculture and other programs. Despite these positive attributes, some feel that the organization is excessively controlled by the forester and the president, who have been in their positions for more than twenty years (see Chapter 4).

2.4.2.3 Bottom-up forestry services (phase four): FA-2

FA-2 emerged in 1994 from the disintegration of a *permisionario* union resulting from communities' discontent with the forester for his apparent mismanagement of the forest and of the union's resources, combined with the 1992 privatization of forestry services. Invoking the 1992 Law, the forester successfully claimed that the *permisionario* union needed to be dissolved

and he appropriated the union's infrastructure to run his own forestry services. The majority of the union's members left to form FA-2 with the objective of providing forestry services to members, which they saw as an opportunity to have more autonomy –to 'free themselves' from the forester and, as the current president of the Union expressed, so they could "do the work [the forest management, channeling of government resources, etc.] themselves, *so they could be the ones ordering the forester, and not the other way around*" (interview, 07-14-2010). They also sought to increase the probability of being taken into account by the government, since "an *ejido* alone is not paid much attention to anymore". The decline of the CNC as the traditional venue for resource channeling and representation and its corrupt practices were also mentioned as motivations for creating the association. Previous collective action was evidently a facilitating factor. In the previous *permisionario* union, the communities had created a regional road committee to invest in maintenance and improvement of the region's (unpaved) roads –an issue that has been central to FA-2. Some of the region's communities had also participated in two different *ejido* unions in the mid-1980s; in fact, the previous president of FA-2 had been secretary of FA-1's governing board.

Following these previous experiences, one of FA-2's first actions was investing in a motor grader and in a tree nursery. Support from the state and municipal governments, a loan from the government's rural bank (BANRURAL), and a new federal program for reforestation activities (PRONARE) were essential for these initiatives. The association also sought to provide resource channeling and political representation, and began to lobby for the paving of the region's main road and the electrification of its main town, both of which it has achieved with the support of the state government.

In the mid-1990s, FA-2 faced two important challenges. One was the peso devaluation crisis, which led to an inability to pay the bank what it owed for the motor grader because the debt quadrupled. The second was the illegal logging that emerged in the region after the deregulation of 1992. To combat it, the Union created a regional committee which established a checkpoint in the region's main road.

In 2002, a change in leadership brought important internal changes. The Union at that time was described as disorganized and controlled by the forester; the new governing board assigned the Union's legal representation to themselves (i.e. the elected leaders) and changed the forester. In 2006, with the PROFAS program, a parallel ARS was created by the main timber entrepreneur in the region along with other private landowners. FA-2 was cut off from the PROFAS funds and from participation in state-level decision-making bodies, including a state-level FA they had helped create. Thus, in 2008, FA-2 decided to join the ARS, although in contrast to FA-1, they chose to maintain FA-2 as a functioning parallel organization. As explained by FA-2's president, this was a strategic adaptation to be able to access PROFAS and other CONAFOR funds and create a division of labors. In his words: "we dance to the tune we are played" (interview, 02-26-2010). The new ARS mostly focuses on tapping into the new forestry programs and creating a regional network for eco-tourism. Meanwhile, FA-2 has continued providing forestry services, channeling resources in forestry, agriculture and basic services, and engaging in "political issues" in which the ARS cannot become involved.[58] FA-2 has benefitted from this situation, using some of the equipment acquired by the ARS –particularly office equipment and a plotter. In addition, it has gained access to regular meetings with CONAFOR and the state's Natural Resources Secretariat which are exclusive to the ARS. However, considering that the funding

[58] All ARS are registered as non-profits and Mexican law prohibits any partisan activities for these types of organizations.

that goes to the ARS could as well go directly to FA-2, the creation of the ARS does not seem so positive.

2.4.2.4 Top-down silviculturalist associations: FA-4

FA-4 was created in 2003 as an ARS by the region's main forester. Similar to FA-2, FA-4 had as its precursor a *permisionario* union which had created regional-level collective action for forest management and built inter-community social capital, but which was controlled by the same forester.[59] Yet in contrast to FA-2, where communities rebelled against the forester, in the case of FA-4 the forester led the initiative to form the new association in collaboration with some community leaders. The forester's motivation was the 2003 Forest Law and its perceived mandate to create associations of communities and private landowners (ARS) within each of the new government-defined regions called UMAFORs. Similar to the cases of FA-3 and the new ARSs in FA-1 and FA-2, communities stated that the reason for organizing FA-4 and joining it was a legal requirement tied to the funding they could receive. As a leader explained, "there had to be an organization to access government programs and projects." The forester was again a central figure, drafting the bylaws and mobilizing communities and government support. However, the region's communities also drew on previous experiences of regional collective action.

FA-4's first activities were investing in fire watchtowers and road improvement equipment, deemed two of the region's main problems. These projects were financed by a combination of member contributions and government support. In 2006, in a classic example of the rent-seeking effect of the new ARS policy, the right hand man of the forester took advantage

[59] Some of the member communities had also participated in the early 1990s in a short-lived *ejido* union which sought to regulate prices and develop a regional timber enterprise (see Table 2.3 above).

of the PROFAS funds to create a new association with almost half of the FA-4's communities and build his own forestry services. This had a substantial impact on FA-4, as it greatly reduced its contribution base.

The organization has weathered this impact and continues to focus on resource channeling from CONAFOR programs. It obtained a regional permit for fuelwood extraction and recently obtained funds for an administration course, a seminar with another FA in Oaxaca, and an environmental impact study for a large road-improvement project. Finally, as occurred in FA-2, a new leadership is attempting to shift the organization's control from the forester to the elected leadership.

2.5. Discussion

The analysis from this study offers important insights into the factors influencing institutional emergence and change, particularly that of inter-community forms of collective action and linkages across scales. Overall, it shows that these processes have resulted from a combination of political-economic conditions, grassroots social mobilizations and the government's responses to them, and strategic adaptations by the associations. **Table 2.4** summarizes these results.

The case provides strong support to our hypothesis that macro-level political-economic conditions play a central role in shaping FAs' emergence and change. The specific characteristics of the Mexican state, however, make this factor stronger and more complex. As an authoritarian system that lasted seventy years, the Mexican government substantially influenced the emergence of grassroots FAs while promoting the formation of top-down ones. Public policies and programs were central in this endeavor. Here, it is important to underscore that while

agrarian policies seem to have had more of an impact on community-level changes over time (see Bray et al., 2006), our historical analysis shows that forest policies have been the most important in the case of FAs.

At least two political-economic changes were essential for the formation of inter-community linkages: the waning power of the central government and the PRI, and FAs' external linkages. But even as it lost centralized power, the state retained a central role in promoting the formation of many, if not all, FAs. Certain reformist sectors within the government, foresters, international aid organizations (e.g. Ford Foundation), NGOs, and progressive academics were all decisive in the formation of different FAs. State- and national-level FAs have also been essential for providing a voice for community forestry at these levels. Yet external alliances can also hinder collective action, as the examples of the CNC and foresters (see Chapter 4) and previous studies demonstrate.

Each phase had a combination of constraining and enabling characteristics. In addition, over time there are constant 'back and forth' struggles between decentralization and re-centralization, generating top-down or bottom-up FAs. FAs are an important part of cross-scale/multi-level governance in Mexico, but the constant struggle between autonomy and state intervention has Frequently, the Mexican government responded to grassroots efforts by creating their own organizations or co-opting existing ones in attempts to maintain political control or promote clientelism, as with Echeverría's land reform and community forestry programs, Salinas de Gortari's 'pact' with peasant organizations, and the PROFAS program. Local actors, such as foresters or regional *caciques*, also created new FAs as ways of capturing resources and gaining political power. This shows the importance of opportunistic, strategic behavior in re-scaling. It also confirms the conception of decentralization as a contested and messy process, or as

"incoherent and unstable regimes" (Wollenberg et al., 2006; also Bartley et al., 2008; Poteete and Ribot, 2011) and coincides with the previous descriptions of Mexican forest and agrarian policies as erratic and cyclical.

Table 2.4. Factors affecting FA emergence and change across policy phases

Phase	Type of organization	Main factors
I (30s-60s)	• No FAs • Community-level *chicle* production cooperatives	• Support for cooperatives from President Cardenas • Logging concessions and bans • Strong paternalism • Financial and political controls
II (60s-86)	• Grassroots social movements against concessions • Top-down FAs as response/political front	• Beginning of PRI's legitimacy crisis • Unjust conditions and inefficiencies of concession system • Pro-peasant Presidents (Echeverría, López Portillo) • Programs supporting community forestry and FAs • Progressive government agents allied to the movements (foresters and others) • Previous local-level collective action experience • Strong paternalism and clientelism

Phase	Type of organization	Main factors
III (86-92)	• Economic FAs focused on developing productive capacity and improving market conditions • Forestry services FAs • Some FAs combining both	• End of concessions • 1980s economic crisis • 1986 Forest Law • External supports from foresters, NGOs, etc. • Strategic alliances with some government actors • Previous collective action experience • New community needs in forestry market integration
IV (92-00)	• New forestry service FAs (adapted from previous ones) • Disintegration of many productive and forestry service FAs • New grassroots forest-protection/environmental FAs (e.g. anti-logging committees)	• 1992 Forest Law and Agrarian Reform • 1994 economic crisis • Large development projects and illegal logging • Pro-community forestry programs • Political openings: PRI 1997 election loss • National FAs lobbying for more government support • New community needs in forestry services
V (00-pres.)	• New top-down regional "silviculturalist" associations: forest management and infrastructure improvements • New grassroots FAs: conservation/environmental services, diversification, commercialization	• Political openings: PRI loses Presidency; • Clientelist networks reconstitute and electoral fraud returns (2006) • CONAFOR and government supports for community forestry • National FAs lobbying for more government support • 2003 Forest Law and PROFAS program • External support from international and local NGOs

These conditions are also untidy and contested to the extent that their implementation and effects vary depending on interactions at the local and state levels. States with previous local and regional histories of collective action seem more adept at taking advantage of policies promoting the creation of new (top-down) associations. But the implementation also depended on local political affiliations and personal interests, such as resource capture. While there have been openings at the national level, many FAs at the local level in states like Durango remain loyal to the PRI. This reflects the combined effect of historical and current political-economic conditions, and FAs' reactions to them. Loyalty to the PRI has generated norms of reciprocity and a belief that the PRI is the party best representing peasants' interests. But there is also a strategic calculation by peasants who recognize the PRI's continuing strength and the lack of alternatives. This helps explain how old clientelist structures readapt to new contexts, as has occurred in Mexico (e.g. Lutz-Bachere, 2006; McDonald, 2001) and other countries (e.g. Ledeneva, 2006; Robinson, 2008). It also reflects the path-dependence of many institutions which affect the incentives of actors that are linked horizontally and vertically, generating a "complex web" of inter-dependent patterns (Fréchette and Lewis, 2011: 583-584).

The complexity of collective action processes also blurs a clear differentiation between bottom-up and top-down FAs, which can be categorized as generally hybrid in terms of their constitution. Many bottom-up organizations had strong support from external actors, while top-down organizations often have had grassroots initiatives to support them. Moreover, in the four case studies there were previous bottom-up and top-down organizational experiences which served to build social capital and influence current collective action. Similarly, many government-created ARS in Durango had a membership which directly correlated to previous *permisionario* unions. In addition, associations may transition from top-down into more bottom-

up organizations, as with FA-4, or vice-versa, as with FA-1. And while the literature on Mexican FAs has continually pointed to the top-down origins as the reason for the dissolution of these organizations, some top-down FAs have been able to succeed. These results underscore the multiple ways in which grassroots social capital can be generated from the top or the bottom, as argued by Fox (1992).

The analysis also shows the dialectic relation between changes in political opportunities and mobilization by FAs. Consistent with previous research on the relationship between states and social movements (e.g. Goldstone, 2003), we saw that while openings in these structures have promoted the creation of new associations and changes in existing ones, associations have at the same time acted to *increase* these openings and promoted new ones. For instance, Echeverría's support for land reform and community forestry were partly a response to the pro-democracy and anti-concession movements, as was the 1986 forest law. Similarly, the 1997 and 2003 forest laws and the PROFAS program were influenced by active participation from FAs. In this way, associations achieve what Tang and Tang (2001) call "negotiated autonomy", which stresses the dual role of both conflict and cooperation in institutional emergence and change.

At the micro-level, the research underscores the importance of cooperative behavior seeking solutions to common-pool resource governance problems as a key motivation for forming or changing cross-scale linkages. Grassroots associations have often emerged as attempts to protect their forest resources and appropriate the benefits flowing from them, influence public policies, and provide services not offered by markets or government, such as forestry services and resource-pooling for basic infrastructure. Leadership and pre-existing social capital were also found to be important factors facilitating the formation and sustainability of FAs. In the four case studies as well as many other examples, the movements began with a few

community or regional leaders who organized meetings with communities to mobilize support, as well as activate connections to government and non-government allies at multiple levels. These movements, however, built on previous (and often top-down) organizational experiences that had begun building a regional, inter-community social capital.

Finally, the results display that FAs and communities are mutually constitutive. The community forestry projects that began in the 1960s built up *local* social capital which later facilitated *regional* collective action; the anti-concession movements further solidified this process (Bray and Merino, 2004; Antinori, 2000; Antinori and Rausser, 2008). At the same time, some have argued that the success of FAs is to a certain extent dependent on its member communities' level of development and success (e.g. Bofill Poch, 2005; Bray and Merino, 2004). Changes at the community level such as the formation of 'work groups' –themselves promoted by structural and micro-level factors– or new needs in forestry services, have created challenges and some changes in FAs, such as increasing the costs of forestry services.

2.6. Conclusions

Previous scholarship has emphasized the difficulties of inter-community collective action, given that they require not just one but two levels of action (Bray and Merino, 2004); and that they often face very constraining political and economic environments (Wilshusen and Murguía, 2003). Our research confirms these difficulties while also highlighting that grassroots inter-community cooperation can overcome them through constant adaptations, including mobilizing to change the macro-level structures in place. We also showed that the emergence and evolution of multi-level/cross-scale governance in Mexico has depended on grassroots collective agency

but also on top-down policy efforts, broader political-economic developments, and personal power-seeking strategies.

These findings offer important contributions to the study of institutional change and cross-scale linkages. Moreover, the mixed methods approach proved a valuable tool to understand both broad patterns and the specific nuances of individual cases. Still, the large diversity across regions within Mexico implies that more research needs to be done at the local, regional and state levels to analyze the trajectories of particular forest associations within a given state and across states. Why, for instance, is it that significantly more communities in Durango belong to a forest association than in Michoacán? Or why have FAs in Oaxaca apparently remained more autonomous than in other regions? By the same token, comparisons with forestry cooperatives or producer or service associations in other countries would have to take the particular current and historical contextual factors into account. We also need to better understand how internal organizational factors affect the adaptation of cross-scale systems to internal and external disturbances, as suggested by scholars of social-ecological systems (e.g. Fleischman et al., 2010). Finally, an issue which needs more attention is how the characteristics of the resources such as abundance, salience, and complexity, affect inter-community collective action and institutional performance (see Antinori and Rausser, 2008; Basurto and Ostrom, 2009). These research directions will help us better understand inter-community collective action, which in turn will allow policy makers to design better policies to support it.

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CHAPTER 3

SCALING UP FROM THE GRASSROOTS AND THE TOP DOWN: THE IMPACTS OF CROSS-SCALE GOVERNANCE ON COMMUNITY FORESTRY IN DURANGO, MEXICO

ABSTRACT

This chapter analyzes the local-level impacts of cross-scale linkages in Mexican community forestry by evaluating the operation of four inter-community forest associations (FAs). Based on one year of fieldwork in Durango, Mexico, the paper focuses on two inter-related issues: (1) the services that each association provides to their member communities and how they impact forest management and the development of communities' forestry enterprises, and (2) the differences in services and impacts between top-down and bottom-up FAs. The findings show that FAs, as a form of cross-scale linkage, can be crucial for the provision of services, goods and infrastructure related to the protection and enhancement of community forests, the economic development of community enterprises, and the political representation of these communities. At the same time, the study finds important differences between top-down and bottom-up FAs, while pointing to some of the disadvantages of each type of linkage.

3.1. Introduction: From community to cross-scale

The collective action tradition has demonstrated that local institutions can strongly influence resource management (Agrawal, 2007; Baland and Platteau, 1996; Gibson et al., 2000; Ostrom, 1990; Ostrom et al., 2002). Recent work, however, has pointed out that sustainable resource management requires reorganizing governance to move from centralized and

community-based projects into "cross-scale" or "multi-level" arrangements (Antinori and García-López, 2008; Berkes, 2008; Brondizio et al., 2009; Carlsson and Sandström, 2008; Heikkila et al., 2011; Taylor, 2010). As Berkes (2008: 1) states, "It is becoming increasingly clear that commons governance necessarily involves a network of interactions at various levels. An increasingly globalized world requires institutions that link the local level to the various higher levels of social and political organization."

"Cross-scale" refers here to the horizontal and vertical connections between communities and other levels of organization such as government agencies and civil society groups. In this sense, it implies a form of networked governance (Carlsson and Sandström, 2008; see also Benjamin et al., 2011; Bödin and Crona, 2009). It is also reminiscent of the concept of polycentric governance, in which collective action occurs in multiple interconnected action situations at different levels and scales (McGinnis, 1999; 2011).[60]

Despite some incipient research (e.g. Antinori and García-López, 2008; Bray et al., 2012; Heikkila et al., 2011), little work has been done on how these linkages actually work and the impacts they generate at the local level. To address this gap, in this paper I seek to analyze the function and impacts of a particular form of cross-scale/networked governance –inter-community forest associations (FAs)– in community forestry through a comparative study of four FAs in the state of Durango, Mexico. The findings show that Mexican FAs have important roles in the provision of services, goods and infrastructure related to the protection and enhancement of community forests, the economic development of community enterprises, and the political representation of these communities. There are also important distinctions in services and

[60] These concepts are also related the work on 'joint' or collaborative/co-management (e.g. Armitage et al., 2007) which looks at partnerships between communities, government agencies and other organizations such as NGOs; the concept of "nested enterprises" or 'institutions embedded within institutions' (Ostrom, 1990; also Brondizio et al., 2009); and that of "bridging organizations" in the development literature (Brown, 1991; Bebbington, 1996).

impacts between top-down and bottom-up FAs. In discussing these results, I contend that the differences are partly a result of the distinct internal governance of each type of FA, but that there are also multiple other factors at play, such as leadership and the historical and political-economic contexts (see Chapter 5).

In the next section, I provide the conceptual grounding for studying cross-scale linkages (CSLs) in common-pool resources, focusing on their potential benefits, the distinction between top-down and bottom-up linkages, and the application of these issues to the Mexican forest commons. In the third section, I present the methods and material used in the analysis, and in the fourth section the main results. The fifth section explains these results, and the sixth section presents the conclusions.

3.2. Conceptual framework

3.2.1. The potential benefits of cross-scale linkages

There are four types of potential roles for cross-scale linkages (CSLs) in common-pool resource settings: ecological, economic, social and political. In the CPR and social-ecological systems literatures, the main focus has been on how CSLs can help improve the *ecological* aspect of CPR management. CSLs often form to tackle complex, cross-scale environmental problems (Benjamin et al., 2011; Heikkila et al., 2011; Chapter 2). By sharing of information and resources and generating coordination, CSLs can help social actors and institutions respond to social-ecological changes more effectively, increasing local resilience and robustness (Armitage, 2008: 14-15; Berkes, 2008; Janssen et al., 2006; Olsson et al., 2006; Ros-Tonen et al., 2008). CSLs also foster negotiation and the integration of different management objectives and 'knowledge systems' (Berkes, 2008; Brown et al., 2005; Reid et al., 2006). As Olsson et al.

(2006: 29) conclude, networks show "a willingness to experiment and generate alternative solutions to emerging problems". Similarly, Heikilla et al. (2011) demonstrate how inter-state water agreements lead to the creation of new cross-scale institutions that promote better water governance.

CSLs can also have *economic* impacts, helping to scale up and diversify production activities by pooling resources, and to improve market power in community-based economic projects such as community-owned timber enterprises (Antinori and García-López, 2008). Cooperatives and other peasant organizations have usually been shown to help members deal with imperfect competition, reducing monopoly and monopsony, generating economies of scale and lowering transaction costs (e.g. designing and administering projects), promoting vertical integration, coordinating aspects of production (production chains, e.g. secondary processing and commercialization of timber), reducing risks (by pooling resources and stabilizing returns), and increasing groups' market power and/or profits –for instance, getting better prices for timber (Anderson, 2003; Ashton, 2006; Bebbington, 1996; Flores and Rello, 2002; Fulton, 1999; Kazoora et al., 2006; Tiles et al., 2004). These organizations can also contribute in the provision of services and goods previously offered by government agencies (Flores and Rello, 2002).

Finally, cross-scale linkages can have *social and political* effects. Organizations or networks that bridge scales –such as FAs– can amplify members' voice in the political arena and increase their bargaining power as part of struggles to gain or defend rights to forests, or to influence public policies (e.g. Britt, 2002; Cronkleton et al., 2008; Durán et al., 2011; Paudel et al., 2010). Network scholars refer to this as "interest aggregation" (Benjamin et al., 2011). Ostrom (2005: 59-63) points to the mechanism of shifting scales as one of the strategies for changing higher-level institutions. FAs may play an important role here in serving as a bridge

between the community and the policy-making levels of government agencies and/or the legislature. They may also serve to expand the "scope of conflict" that also influences institutional change.

Scaled-up or networked forms of organization can also strengthen local social capital through small-scale projects that build trust, participation, conflict-resolution and institutional and technical capacities (Bebbington, 1996; Bray et al., 2012; Brown, 1991; Durán et al., 2011; Paudel et al., 2010), and can increase communities' ability to adapt to external political-economic disturbances (Berkes, 2008; Fabricius et al., 2007; Hahn et al., 2006; Smith and Wandel, 2006).

3.2.2. Different linkages, different benefits: Top-down and bottom-up

To this date, research on CSLs has paid little attention to how different *types* of linkages influence their operation and impact. However, previous work has shown that bottom-up and top-down institutions can differ in both internal governance and resource management outcomes. Some recent studies have shown that government-initiated (top-down) co-management projects have worse management outcomes than self-organized or NGO-led community governance in forests (Agrawal and Chhatre, 2007; Behera, 2009). Moreover, these top-down linkages can lead to a reduction of communities' linkages with external actors, lower levels of local collective action, and politicization of local resource governance (Nayak and Berkes, 2008). Self-organized processes/institutions are not necessarily more successful, but more likely to be so. There are several reasons for this, which have been explained elsewhere (e.g. Agrawal and Chhatre, 2007; García-López and Arizpe, 2010; Ostrom, 1990; Scott, 1998). At the same time, recent research shows that top-down linkages can also have positive outcomes. For instance, Schoon (2008), in

an analysis of transboundary park conservation in Africa, finds that while bottom-up arrangements do increase cooperation and coordination at the operational level (the day to day management of the parks), top-down arrangements can also generate successful cooperation but at higher levels of governance (national level policies and ministerial frameworks).

3.2.3. Cross-scale linkages in the Mexican forest commons

In Mexico a substantial body of literature developed over the last twenty years has highlighted the notable successes of its community forestry experiment, which have led some to call it a "global model for sustainable landscapes" (Bray et al., 2003; see also Antinori and Bray, 2005; Barsimantov and Navia, 2012; Bray et al. 2005; Bray et al., 2008; Merino 2004; Tucker, 2004). Approximately 80% of Mexico's forests, covering over one fourth of the country's territory, are estimated to be under community ownership, the second highest percentage in the world after Papua New Guinea (Antinori and Bray, 2005). This property rights regime was an outcome of the Mexican Revolution and the subsequent land redistribution, embodied in Article 27 of the 1917 Constitution, which gave land in common property to groups of landless peasants or indigenous communities.

Notwithstanding this large-scale devolutionary process, Mexico continues to suffer from high levels of deforestation (Barsimantov, 2010). In addition, recent research shows that less than 25% of Mexico's forest communities are harvesting timber, and the majority that are sell stumpage wood, with little participation in the extraction process (Antinori and Rausser, 2010; Merino, 2011).[61] At the same time, communities face substantial challenges related to weak organization, insufficient management skills, and limited access to markets (CONAFOR, 2000; Merino, 2011). To these challenges one must add the decreasing productivity at the national level

[61] There is variation by state; Durango and Oaxaca have the highest percentages of vetically-integrated communities.

and the increasing importation of cheaper wood from countries like Chile (Merino, 2011). These problems threaten the survival of vast forest areas and the livelihoods of millions of rural households, while suggesting that community institutions are not enough for successful forest management, pointing to the need for connections across scales.

FAs are one example of inter-organizational networks that create cross-scale linkages connecting communities to each other and to higher levels of governance.[62] As shown in Chapter 2, FAs have a long history in Mexico, emerging in top-down and bottom-up forms since the 1960s with a diversity of objectives and activities. An emerging scholarship has begun to analyze the role of these associations in Mexican community forestry (e.g. Antinori and García-López, 2008; Bray and Merino, 2004, Chap. 11; Bray et al., 2010; Bray et al., 2012; Duran et al., 2011; Merino et al., 2008; Taylor, 2001; Taylor and Zabin, 2000; Wilshusen, 2010), as well as other cross-scale linkages (Barsimantov, 2010; Orozco-Quintero and Berkes, 2010). Most of them have been case studies of individual FAs, with only a handful of comparative analyses (e.g. Taylor and Zabin, 2000). These studies have pointed to the positive impacts that FAs can have on member communities, as well as the challenges they face. Using a survey database of 41 communities from Michoacán and Durango, in Chapter 2 I analyzed the services provided by FAs as reported by members. A principal factor analysis identified seven types of services provided by the FAs: legal and political representation; environmental protection; price information and contract monitoring; radio communication and road infrastructure; timber extraction and marketing; forestry services; and capacity-building and resource channeling. Antinori and Rausser (2010), using the same database, further showed that while associations do not always have the expected positive impacts on member communities, association membership

[62] Each community has its own collective action organization; therefore, an inter-community association (FA) is an organziation of organizations, or an inter-organizational network.

is positively correlated to community investments in secondary processing, diversification of forestry activities, and investment in local public goods (e.g. roads, schools). FA membership was also associated with reduced incidence of illegal harvesting, and with self-reported improvements in both forest cover and wildlife abundance. There was also a significant correlation between the type of FA (bottom-up or top-down) and the type of service provided: top-down FAs focused more on capacity-building, environmental protection, tree nurseries, and professional forestry services, while bottom-up FAs focused more on timber extraction and commercialization. At the same time, historical analyses show the hybrid organizational origins of many FAs, reflecting that top-down and bottom-up categories are very fluid (see Chapter 2).

Merino et al. (2008) argued that FAs are necessary for taking advantage of scale economies, financing quality forestry services, developing professionalized commercialization of forest products, and political representation. Using a national-level survey of FAs, they found that top-down FAs have had some positive impacts related to coordination with the government, particularly participation in activities related to the promotion of government programs and diffusion of information, as well as improvements in the expedition and execution of the projects. The top-down FAs operate as 'specialized' organizations to process applications to CONAFOR projects that support forestry activities (Merino et al., 2008). They have also provided benefits including obtaining training and resources for equipment for forest fire fighters, training in tree production, and exchange of experiences with forest communities from other regions (*ibid*).

Important gaps, however, remain in this research agenda. First, there is no clear understanding of the causal *mechanisms*, i.e. how and why these impacts occur, and how they vary across bottom-up and top-down linkages. Second, the success cases presented in the

literature must be taken with caution, given the multiple organizational, political-economic and historical factors that can hinder the effectiveness of FAs. This is particularly the case in contexts of authoritarianism in state agencies and rural communities, clientelism and corporatism, as has been the trend in Mexico (Wilshusen and Murguía, 2003).

3.3. Research Design and Methods

This work is based on the comparative case study method, which allows for close examination of complex empirical processes by collecting information across carefully selected units, based on theoretically-guided questions (George and Bennett, 2005). I purposefully selected four FAs following the "diverse-case" approach, in which the selection of cases is done to achieve maximum variation in the variable of interest (Gerring, 2007). In this case, the variable was the origins of the linkage: whether the FA was created by communities (bottom-up/BU) or by external actors (top-down/TD). I selected two grassroots FAs (FA-1 and FA-2) and two top-down ones (FA-3 and FA-4). I also selected the organizations based on their time of origin, in order to have a representative sample of the different phases of Mexican forest policy and the different types of associations that emerged in each phase (see Chapter 2). Finally, there was an attempt to control for group size and location. Basic coded information about the form of origins, year of formation, and membership size was obtained from a 2007 survey of forest communities in Durango (see Antinori and Rausser, 2010). Within each FA, I sampled communities –all of the communities in FA-2, FA-3, and FA-4, and a sample of communities from FA-1 that was similar in size to those of the other three associations and that was representative of community size and of the different sub-regions found in FA-1.

Data gathering was done through one year of fieldwork in Durango based on archival research and semi-structured interviews of key actors within each organization, participant observation of FA meeting activities, interviews with other key stakeholders (e.g. government agencies, foresters), community-level focus group discussions, and semi-structured interviews with members and elected leaders of the communities. A total of 48 communities from the 4 FAs participated in the study.

I identified the benefits of FAs in three ways: by asking leaders and other community members open-ended questions about services and benefits (perceived benefits), by looking at specific community characteristics, and by comparing member and non-member communities. The focus group discussions tended to confirm the community leadership's perceptions, though in some cases they were diametrically opposite.[63] The measured benefits include two community-level socio-economic characteristics that could be influenced by FAs: vertical integration, which is a proxy for the level of community collective action and development; and whether communities are internally united or divided into so-called work groups.[64] I also include three measures of the impact on forest management: self-reported incidents of forest fires and of changes in timber stocks, investment in diversification of forest uses (eco-tourism, payment for environmental services, etc.), and the adoption of sustainable forestry (FSC) certification. These outcomes could be directly related to FA membership if the FA helps the community channel resources for industrial timber processing equipment or business-related training, or indirectly by channeling resources for activities like courses that strengthen community organization or by promoting vertical integration or FSC certification.

[63] The perceived benefits or impacts from the FA activities are also influenced by subjective perceptions about the organization which include, among other things, whether the individuals interviewed are in alliance with (or support) the FA leadership. These problems are somewhat mitigated by interviews with multiple community members, though it was not possible to visit all the communities in each FA.

[64] On work groups, see Wilshusen (2005), Taylor (2003).

3.3.1. The setting: Durango

The state of Durango is located in the northern extreme of Mexico's interior or central region (see **Figure 1.2**, Chapter 1), bordered by the state of Chihuahua to the north, Zacatecas and Nayarit to the south, Coahuila and Zacatecas to the east, and Sinaloa to the west (SRNyMA, 2006). It is the fourth largest state in the country, but also one of the least populated (Government of Durango, 2011). While most of the population (65%) lives in 3 large cities, the remaining 35% is highly dispersed, living in 5,000+ locations representing 99% of all of the state's settlements. Durango also has a strong primary sector economy (agriculture, livestock and forestry) constituting the highest share of Gross Internal Product (GIP) (12.7%) of any state in the country (Government of Durango, 2011). The state also has one of the lowest proportions of economically active population in the country (56% in 2008 – UPUCODEFO4, 2008: 207).

Durango's forest sector has substantial importance both at the state level and nationally. The state is crossed on its west side by the *Sierra Madre Occidental* mountain range, which crosses all of Mexico. This mountain range houses the state's main peaks, which surpass three thousand meters, and most of its forest resources (SRNyMA, 2006). Durango has the country's second-largest temperate forest area (4.9 million hectares, 41% of the state's total area) and the largest timber stock (410 million m3, approximately 20% of the country's total) and ranks, together with Chihuahua, first or second (depending on the year) in terms of timber production with an average of 2 million m3 of timber per year (SNRyMA, 2006). Moreover, contrary to other areas of Mexico, the state shows low levels of deforestation, with a rate of only 1% between 1993 and 2002, 5 percentage points lower than the national average (Perez-Verdin et al., 2009). Durango also has the most communities and the largest area certified as sustainably managed under the Forest Stewardship Council's (FSC) certification system (Trujano et al.,

2010). As a result, forest-sector stakeholders in Durango proudly claim their title as the "Number One Forest Reserve" in Mexico.

Durango has also historically been a pioneer in community forestry in the country. The state has a total of 395 forest communities (including temperate and jungle/*selva* forests), of which 78% are *ejidos* and 22% *comunidades*. In 2008 SEMARNAT had 618 timber extraction permits of which 45% belonged to forest communities and the rest to private properties (de la Mora, 2004, cited in UPUCODEFO4, 2008). Recent surveys (Antinori and Rausser, 2010; Merino and Martínez, 2011) found that Durango has the highest proportion of communities with timber extraction and the highest proportion of vertically-integrated communities.

Durango's forestry sector began developing towards the end of the 19th and beginning of the 20th centuries, when the state was subject to large-scale investments in forestlands by US investors benefitting from dictator Porfirio Diaz's 'vacant lands' policy to expropriate indigenous and peasant lands. After the Mexican revolution, lands slowly began to be devolved through land grants to indigenous communities and peasant *ejidos*. However, between the 1950s and 1970s, Durango served as laboratory for the implementation of the federal policy of logging bans and timber concessions. During the 1970s, Durango's forest communities held a privileged position with the federal government, which allocated to them most of the funds for forestry enterprises.

Thus, contrary to states like Oaxaca, where most forest communities are indigenous and have had a long history of autonomous organization, Durango's forest communities and their organizations emerged directly in association with the Mexican semi-authoritarian state-party system. Moreover, again in stark contrast to Oaxaca, Durango has a practically non-existent NGO sector related to community forestry, with the notable exception of Rainforest Alliance,

which does the FSC certification and some other forest-related projects. In Durango, this NGO role is mainly filled by private foresters who contract individually with communities, and to less extent by FAs. Lastly, despite the importance of Durango as a forest state, few researchers have ventured there (the two previous exceptions are Antinori and Rausser, 2010 and Taylor, 2001, 2003). Oaxaca has been the focus of the vast majority of research on Mexican community forestry. Research outside Oaxaca has tended to focus on a few 'model' communities, such as San Juan Nuevo in Michoacán and El Balcón in Guerrero. Whether the findings from such particular settings are generalizable across different contexts remains unclear, and this study hopes to contribute to elucidate this.

3.3.2. The four FAs

The four FAs in the study –FA-1, FA-2, FA-3 and FA-4– are located in four of the five main forestry municipalities in Durango, representing about 60% of the authorized extraction volume of timber in the state as of 2003 (SRNyMA, 2006). The regional forest studies conducted in each region give a broad picture of some of the regions' main problems.[65] Socio-economic issues include communities' poor organization for commercialization of timber products and integration of production chains, poor quality of infrastructure (mainly roads), low private and public sector financing for community forestry enterprises and projects, low levels of community re-investment into their forestry enterprises, rural unemployment and migration, drug-related insecurity and lack of basic services like electricity, health, education and potable water. Lack of employment was the main or one of the main problems mentioned by all the communities interviewed. The main source of employment in forest communities is usually temporary work in forest-related activities (e.g. timber cutting and extraction, transport, reforestation) which lasts

[65] For a more detailed description of the regions, see Chapter 1.

about 3-4 months each year (see also Antinori and Rausser, 2010). This is often combined with subsistence-based agricultural activities. On the ecological front, recurrent problems are soil degradation, over-grazing, forest fires, and deforestation, the main drivers of which are illegal drug production and expansion of grazing lands (SRNyMA, 2006). **Table 3.1.** summarizes the characteristics of the four FAs.

Table 3.1. Basic characteristics of 4 FAs in Sample

Name	Year	Origins	Members	Total forest area (ha)	Timber volume (m3)
FA-1	1968	BU	*40 coms**, 33 pp** (77 tot)	474,543	Pine: 385,521 Oak: 102,739 TOT: 504,914
FA-2	1994	BU	*12 coms* (12 tot)	52,833	Pine: 39,477 Oak: 16,900 TOT: 56,377
FA-3	1986	TD	*10 coms*, 178 pp (188 tot)	186,000 (aprox.)	Pine: 167,825 Oak: 39,901 TOT: 216,933
FA-4	2003	TD	*13 coms*, 8 pp (21 tot)	56,638	Pine: NA Oak: NA TOT: 73,831

* coms = communities

** pp = private (smallholder) properties

FA-1 was officially constituted in 1968 as part of communities' struggles against the government concession of the region's forest lands to a foreign timber corporation. As with other similar associations (see e.g. Taylor, 2001 on UNECOFAEZ in Durango), FA-1 began with support for land titling and to promote the organization and unity of forest communities and the development of their nascent community forestry sector, and later for industrialization and

commercialization of community timber enterprises. One community leader expressed it as an attempt to "protect" each other and gather strength for processing and commercializing their timber (interview, 04-27-2010). The Union's 1976 work program established two objectives: (1) creating a concentration area (*patio de concentración*) to collect member communities' forest products and commercialize them, therefore "avoiding the interruption of production", and (2) commercializing these products through the Union, in order to avoid the participation of intermediaries (FA-1 constituting meeting minutes, 1976). Pursuant to these objectives, one of the key services of the Union during its initial years was a price list with set prices for logs and sawn products. In the 1970s, the union acquired its own sawmill and served as intermediary between communities and timber buyers, but these projects failed after a decade. In the 1990s, the Union built a tree nursery, but it never became operational and was transferred to the region's largest forestry services.

From 2005 and 2007, the Union underwent a process of restructuring (see Chapter 2 and 4) in response to pressures from CONAFOR, changing from *ejido* union to the new "regional silviculturalist association" (ARS) model. This also implied changing its membership as well as its bylaws and objectives to meet the requirements of article 112 of the 2003 Forest Law. According to its ex-president, the organization now "seeks to contribute to obtaining a sustainable forest planning, an ordered planning of the forestry activities and the efficient management of forest resources, by carrying out the activities contemplated in the law, and be able to receive the economic support to carry out those activities and enjoy the supports and stimulus established by the Federal Law for the Promotion of Activities Carried out by Civil Society Organizations." (FA-1 meeting minutes, 2007).

FA-2 emerged from the ashes of a *permisionario* union that had formed in 1986, and which disintegrated as a result of the 1992 Forest Law. The law created an opening for the union's forester, who –knowing his removal from his position was imminent– convinced a majority of members that the union needed to be dissolved, and appropriated the union's infrastructure (see Chapter 4). FA-2 formed from the majority of communities that did not want to stay with the forester and instead wanted to have their own forestry services. FA-2's motto became: "for the rational management of the forest and the development of its inhabitants." According to the Union's bylaws, the FA's main objectives are in issues related to raw materials in agriculture and forestry, and provision of technical forestry services and other services such as resource channeling, commercialization, access to credits education, and legal and financial advice.

FA-3 came into being in 1986 as a result of the 1986 Forest Law's provision to give forestry service concessions to FAs. Initially only a few individuals joined, though eventually a total of eleven communities and 204 private landowners constituted it. One of the main reasons for forming the organization was dissatisfaction with the director of the government-run forestry services (UAF), though many communities perceived that it was a legal obligation from the 1986 law. A forester in the region, who had been the right hand man of the UAF director, had a strong role in its creation. FA-3 obtained the concession to provide the forestry services in the region in 1989, with the same membership as the government UAF. Through these services, the association sought to "contribute to the social, economic and ecological development of the forest areas" by promoting "the sustainable use of forest resources" in the region (FA-3 bylaws, 1989). More specifically, FA-3's objectives were to design management plans and other

technical studies for members, provide capacity-building, channel resources, represent the interests of the members, and help mediate in and resolve conflicts (FA-3 bylaws, 1989).

FA-4 was created in 2003 by the region's main forester, who had been the director of the government-run forestry services and later of a *permisionario* union. The main motivation was the 2003 Forest Law's perceived mandate to create new regional associations within each Regional Forest Management Region (UMAFOR) in the state. FA-4 was the first of its type in the country. However, community leaders also participated, especially some who had previously formed an *ejido* union in the 1990s. The overall objective of FA-4 is to "achieve a sustainable management of forests ecosystems that guarantees its productive capacity in the short, medium and long terms, through the promotion and diversification of integral forest production, seeking out the social improvement of producers." Specific objectives include generating regional analyses to plan forest actions; identify forest products markets to improve investment; develop commercialization and timber production; integrate region-wide information to improve the quality and efficiency of forestry services; organize regional 'production chains'; and develop regional strategic planning (FA-4 bylaws, 2003).

3.4. Results

3.4.1. What do linkages do?

The research identified five types of services provided by the four FAs: resource channeling, resource pooling, political representation and information exchange, regional analysis and strategic planning (except FA-2), and forestry services (FA-2 and FA-3 only). **Table 3.2** summarizes the services provided by each FA. *Resource channeling* –or what interviewees commonly refer to as "*gestoría*" (roughly translated as agency or lobbying)– refers

to FAs' actions to secure funds from different government programs in forestry, housing, agricultural subsidies, and basic infrastructure like roads and electricity, for a specific community or for the whole region. Sometimes this means applying to funds directly, while others it entails lobbying government agencies for certain projects. Interviewees in all four cases, as well as external stakeholders, constantly referred to this as the associations' main role. An ex-leader of a community from FA-1 expressed that the objective was "to make sure that communities are obtaining their resources" (interview, 08-26-2010). A forester from the same region further described the associations as a "bridge" between communities and government agencies where "[community] needs flow from here to there [to the government] and support programs flow from there to here." (interview, 03-04-2010) In one of the member communities, the leaders said that the FA was the one lobbying for all of their projects (interview, 06-11-2010). In all four FAs, some interviewees remarked that if there was no one lobbying agencies on their behalf, they would never obtain those resources. For instance, FA-2 and (to a lesser extent) FA-3 were instrumental in creating inter-community initiatives (road committees) to improve the regions' main roads and eventually to get the government to pave them, and in 2011 FA-1, FA-3 and FA-4 received funding for road improvements in their regions. FA-2 and FA-3 have also been instrumental in pressuring for the regions' electrification. FA-1, FA-2 and FA-3 also channel subsidized agricultural inputs (oat seeds, etc.) to members.

It is important to note that some interviewees considered that their receipt of funds, especially those from CONAFOR, was conditional on their membership in the associations, rather than on lobbying and representation (referred to as "*gestoría*" in Mexico). As one community leader in FA-1 said, "being in the association is how we receive the PROARBOL funds" (interview, 04-30-2010). In relation to this, others believed that being in the Association

automatically gave the community some points in the applications for CONAFOR program funds. This view was more prevalent in the non-forestry service associations, receiving seven mentions in these associations (two in FA-1 and five in FA-4), compared to one mention in FA-3 and none in FA-2. This perception results from the fact that between 2005 and 2007 CONAFOR awarded 3 extra points in the program applications to communities within the new (ARS) associations, as a way to 'convince' communities into joining these associations. Yet currently this perception is incorrect because after 2007 these points were discontinued. Moreover, with a few exceptions, most CONAFOR programs are awarded to individual communities and not to the FAs, and it is the forester hired by each community who applies to those programs.

Resource pooling refers to gathering members' contributions for certain projects, oftentimes combining them with government funds. Most federal government programs require a portion of the costs to be covered by the solicitor. By pooling the resources from their membership, FAs reduce the financial contributions that a given community would have to do on its own. FA-3 and FA-4 have used member fees to invest in their fire watchtowers (FA-4 has built three and FA-3 five) and to support fire combat brigades, either with salaries or food. FA-2, FA-3, and FA-4 all collect member contributions for roads improvements, while FA-2 and FA-4 have also invested in road improvement machinery (motor graders and backhoes). Through these investments, associations engage in the provision of public goods (e.g. improved forest protection, better transport infrastructure). Some of the FAs also pool resources for economic enterprises. FA-2 and FA-3 have tree nurseries (FA-3 has two); the first produces about 100,000 saplings per year, and the second about 2 million. They sell these trees to their member communities at subsidized prices, and to CONAFOR. FA-1 also used collective investments for its collective enterprises (sawmill, nursery), yet as seen above all of them have since failed.

Table 3.2. Services provided by 4 FAs in the study

Services	Association			
	FA-1	***FA-2***	***FA-3***	***FA-4***
Resource channeling	X	X	X	X
Resource pooling	X	X	X	X
Political representation	X	X	X	X
Regional analysis and strategic planning	X		X	X
Forestry services		X	X	

Political representation and information exchange is tightly linked to FAs' lobbying activities, and more generally to FAs role as intermediaries facilitating "interest aggregation". As a community leader expressed, the objective is to "represent all the communities in government agencies…to go united towards a common goal." (interview, 05-22- 2010) One aspect of this is intervening to help communities in conflict resolution. For instance, FA-1 was instrumental in a conflict between a member community and a timber company, and more recently in negotiating with the Mexican Social Security Institute (IMSS) when it does not provide the needed health services[66], which is a common occurrence among rural residents; and to convince the federal Treasury to condone or reduce a tax debt that many of the region's communities have with the agency.[67] A second dimension is associations' participation in governmental decision-making bodies at municipal, regional, and state levels. FA-2 and FA-3, for instance, have voting

[66] In Mexico, social security refers to medical coverage provided to employees of a company, not to money from employment.
[67] Communities are subject to taxes on their profits from their timber sales, but many do not pay it, and some have even convinced the government not to charge it to them (e.g. San Juan Nuevo in Michoacán).

representation in the Municipal Council on Sustainable Rural Development (CMDRS), the Evaluation Committee of the State's Natural Resources Secretariat (SRN), SEMARNAT's Central Consultative Council for Sustainable Development, and the Committee on Forest Management within the State's Forests and Lands (*Suelos*) Council. Three of the FAs also have indirect representation in CONAFOR's state evaluation committee through their membership in a state-level association. Each of these committees is in charge of evaluating and approving proposals for funding submitted by communities or individuals, except for SEMARNAT's Council, which is an advisory body. Leaders in one of the FAs described this as one of their most important and at the same time challenging activities, which gives them the ability to influence government policies and the resource channeling process. A third dimension of representation is the use of FAs as traditional clientelist networks through which FAs connect peasants to political parties (especially the PRI) in exchange of certain benefits (see Chapter 4).

In some cases, FAs also link to other external actors at different levels. In the case of FA-3, the President is the municipal representative of a national NGO dedicated to agricultural and forestry research and technology transfer. FA-2 and FA-1 are also members of UNOFOC, a national association of FAs and forest communities[68]; while FA-1, FA-3, and FA-4 are members of the state confederation of regional silviculturalist associations, which in turn is a member of the national association of state confederations. Through these higher-level associations, FAs try to influence state and national policies and programs and can better coordinate with agencies at those levels. Lastly, FAs are tied to peasant organizations and political parties. FA-1 and FA-2 leaders, for instance, consider the association as tightly interlinked to the CNC. Both FA-2 and FA-3 stated that they are taken into account in the process to select candidates for office for the PRI party.

[68] On UNOFOC, see Chapela (1998).

Regional analysis and strategic planning has been funded by CONAFOR as part of what the agency considers the new ARS associations' 'duties'. These 'duties' include the Regional Forest Study, 5-year Strategic Plans, Plans for Raising and Diversification Income, and Annual Work Plans. These are currently pre-requisites for receiving other funding. The only one that has not been involved in this type of activity is FA-2, because it is not an ARS. However, the ARS that formed parallel to FA-2 has been doing these studies.

Finally, FA-2 and FA-3 have their own *forestry services*,[69] which involve designing landowners' forest management plans, obtaining extraction permits, and supervising the process of tree mark-up. As is common in Durango, these services also entail channeling funds for forest management and soil conservation (reforestation, mini-dams, fire lines, etc.), capacity-building through courses, eco-tourism projects, payments for environmental services, and development of communities' timber and non-timber enterprises, among others. Forestry services are also a form of resource pooling, where members' service fees are used to invest in infrastructure that enhances these forestry services (and ultimately forest management), such as the tree nurseries and fire combat infrastructure, which individual communities and small private forestry services are often unable to acquire on their own.

3.4.2. Perceived benefits

Table 3.3 presents the results regarding the perceived benefits from member communities (leaders and/or focus group discussions) in each FA across different categories.[70] **Figure 3.1** presents these results in visual form. A high percentage of member communities in each of the associations perceived some benefits in at least one of the categories (see the last column,

[69] The communities in FA-1 and FA-4 contract private forestry services.
[70] **Appendix 2** presents the detailed responses by community.

TOTAL). This ranged from 83% of the communities in FA-4, to 100% in FA-3. Eight different categories were identified: (1) resources for forestry programs, (2) resources for agriculture, (3) resources for basic infrastructure, (4) information, (5) political representation, (6) unity, (7) forestry services, and (8) investments in public goods.[71] These are ordered from left to right in order of importance, i.e. the average percentage of communities in the full sample of communities (n = 48) mentioning the category as a benefit. The most important categories where those directly related to resource channeling/*gestoría*: forestry (63%), basic infrastructure (42%), and agriculture (40%). Investments in public and collective goods (39%), forestry services (35%), and unity (34%) emerged as moderately important; and political representation (17%) and information (16%) as the least important.

Forestry-related resources were the most important benefits perceived on average across the whole sample. FA-2 and FA-3 had the highest percentages of member communities reporting this as a benefit (75% and 70% respectively), as expected given that they provide forestry services. However, the percentages were also high in FA-1 and FA-4 (57% and 50%). In FA-3 and FA-1 this was the second most important benefit, and in FA-2 the most important. Some communities also mentioned equipment and food (*dispensas*) for fire brigades. Importantly, only in very few cases did communities mention 'diversification' programs such as payment for environmental services or wildlife management units (1 mention each in the whole sample), eco-tourism (3 mentions – 2 in FA-2 and 1 in FA-3), and a region-wide permit for extraction of cellulosic material (1 mention – in FA-4). The most-mentioned supports were those directly related to forest management (e.g. reforestation). However, there was one significant difference between the associations that provide forestry services and the ones that don't. In those that

[71] Note that these categories have some overlap. For instance some of the associations invested in public goods such as fire towers and road improvement machinery, but these investments were coupled with resources channeled rom government programs.

provide these services, these resources were perceived as a direct benefit of the forestry services, and communities made the link to specific programs. In contrast, in FA-1 and FA-4, communities mostly perceived them as indirect benefits related to membership and referred to resource channeling in general terms. In FA-1, only two communities mentioned specific programs, and in FA-4, three communities did.

Table 3.3. Perceived benefits of 4 FAs in the study by category

FA	**Benefits (% mentioned)**								
	RC-F	*RC-BI*	*RC-A*	*IC+PG*	*FS*	*UNITY*	*PR*	*INFO*	*TOTAL*
FA-1 (n = 14)	57.1%	21.4%	**78.6%**	0%	0%	14.3%	**35.7%**	14.3%	93%
FA-2 (n = 12)	**75%**	**66.7%**	25%	8.3%[72]	50%[73]	**58.3%**	25%	33.3%	100%
FA-3 (n = 10)	70%	50%	50%	70%	**90%**	40%	0%	0%	100%
FA-4 (n = 13)	46%	30.8%	7.7%	**76.9%**	0%	23.1%	7.7%	15.4%	84.6%
AVG. (n = 49)	*62%*	*42.2%*	*40.3%*	*38.8%*	*35%*	*33.9%*	*17.1%*	*15.7%*	*94.4%*

RC-A: Resource channeling for agriculture
RC-F: Resource channeling for forestry
RC-BI: Resource channeling for basic infrastructure
PR: Political representation
FS: Forestry services
IC+PG: Investment in common and public goods

The second most important type of perceived benefit was *resources for basic infrastructure*. The two most predominant benefits mentioned in this category were road improvements and electrification. Basic services like potable water and housing improvements

[72] This refers to FA-2's past investment in road-maintenance machinery, which they sold once the road was paved.
[73] N=8, the number of member communities that actually contract with the Union's forestry services.

were also mentioned in some communities. FA-2 was the association with the highest percentage of mentions in this category (66.7%), and it represented the second most-important perceived benefit for this FA.[74]

The third type of benefit in order of importance was *resources for agriculture*. FA-1 showed the highest percentage of communities perceiving this benefit (78.6%), followed by FA-3 (50%). The main resources mentioned were subsidized oat seeds and fertilizer, channeled through the state's agriculture ministry. FA-3, for example, obtained 160 tons of oat seeds with 50% subsidy in 2011. Fruit trees and women's tortilla enteprrises (in FA-1), wire for fencing (in FA-1 and FA-2), trout farms (in FA-2 and FA-3), and nutritional supplement for livestock (in FA-2) were also mentioned. In FA-4 only one community reported benefits in this category. This coincides with the observation that this association currently does not provide any services in this area, though its current president has plans to develop programs to this end.

The fourth-ranked type of benefit was *investment in public goods*, which had a very similar average to RC-A across the four FAs. This was perceived as a benefit by a very high percentage of communities in FA-3 and FA-4 (70% and 75% respectively) and was the most important benefit in FA-4 and the second most important (tied with RC-F) in FA-3. In FA-4, the main aspect mentioned was the investments in road improvements, through the purchase of road-improvement machinery (motor grader and backhoe), and in fire combat infrastructure (watchtowers and brigades). In FA-3 communities mentioned these as well as tree nurseries and the radio communication system, which serves in cases of forest fires or emergencies like road accidents or illnesses. Referring to the importance of the radio communication and watchtowers

[74] Only one community mentioned housing supports, but the current leadership declared in its report to the members' assembly in Sept. 2011 that they had helped channel floor constructions for 35 houses in different member communities by collecting and submitting the paperwork to the Municipal Housing Institute (IVED), and also 'promoted' housing improvement credits for 6 families.

for combating fires, a previous leader of FA-3 concluded: "Communication *is* development." (interview, 10-05-2011, emphasis added) FA-3 also has a longstanding tradition of investing a fixed percentage of all government program funds even when there is no formal requisite to do so, as an 'incentive' for the government to approve their proposals (interview with FA-3 forestry service director, 06-26- 2010). In FA-1 and FA-2 these benefits were practically non-existing, though some interviewees noted they had existed in the past. FA-2 does have tree nursery and in the past invested substantially in maintaining the road.

Forestry services ranked fifth across the four FAs (35%), though only two of the FAs (2 and 3) provide this benefit.[75] It was the most prominent perceived benefit in FA-3 (90%). In this association, many emphasized the high quality of services (particularly the fact that the services were, as several interviewees put it 'more than just markup of trees'), and the good forest management practices implemented, including a strong focus on reforestation and soil conservation activities, fire combat, and the proper markup and cutting of trees. Several communities expressly connected the good forestry services to the observed reduction in forest fires and the overall improvement of their forest, especially regarding timber volumes. In FA-2, while some mentioned good forest management and service quality, others emphasized the importance of having their own forestry services so "they could do the [forestry] work themselves, *so they would be the ones commanding the forester, not the other way around*" (interview, 08-03-2010, emphasis added).

Another benefit mentioned in a substantial percentage of communities in all four associations (32%) was *unity*. FA-2 had the highest percentage of communities (58.3%) in this category, followed by FA-3 (40%). FA-1 had the lowest percentage (14.3%), perhaps because of the organization's strong internal divisions. The underlying idea was that being united provided

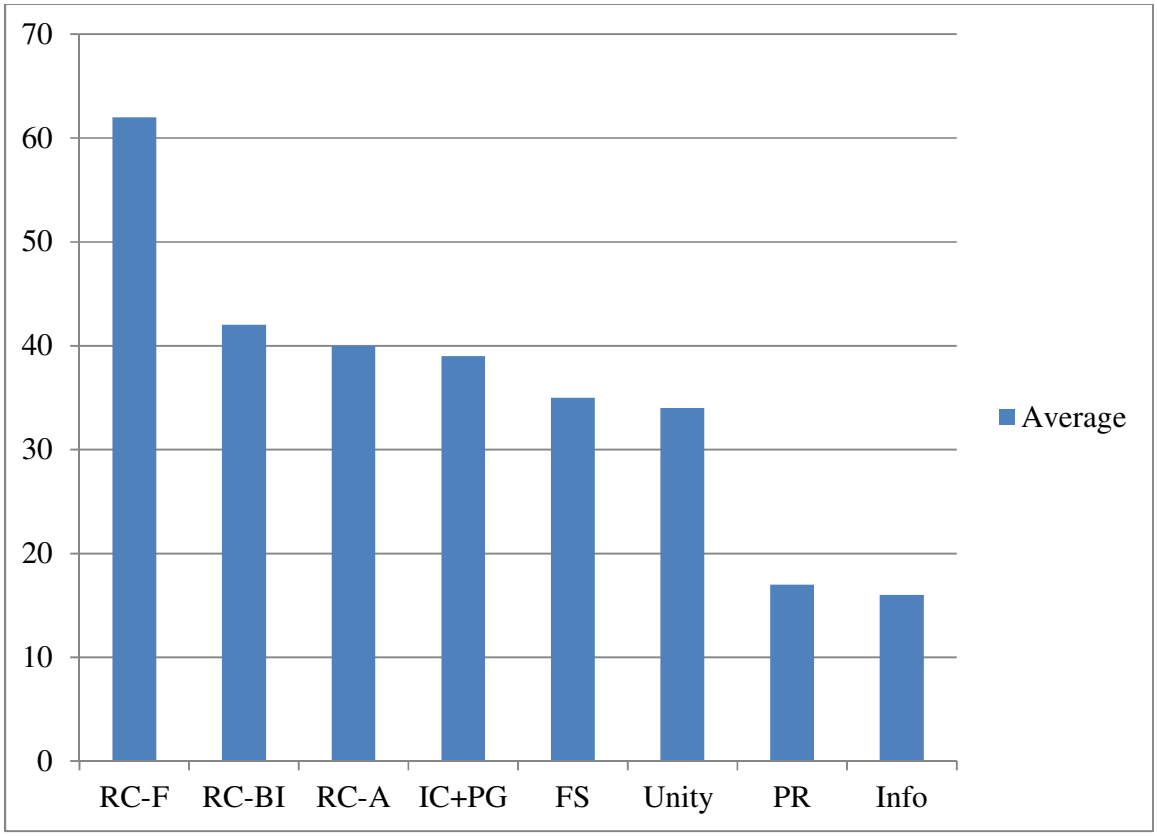
[75] This benefit is tightly linked to resource channeling for forestry programs

'political strength' –the well-known saying of 'unity provides strength' was often mentioned– which in turn made it easier to access government resources and solve problems. As one community leader from FA-1 put it: "one speaking for oneself is not the same as one speaking for twenty" (interview, 05-22-2010). This highlights the political role of FAs. In other cases, there was a perception that being united was a benefit because the government gave preference to communities organized within FAs. As mentioned by a community leader in FA-2: "united it is much easier to obtain attention, because they [the government] rarely pay attention to a community on its own anymore" (interview, 08-25-2010). This perception coincides with government statements which emphasized that they would give priority to the 'well-organized' communities. A few others emphasized how being united allowed them to 'work together' and pool resources to invest in projects or equipment.

The two least important benefits in the sample were *political representation* and *information-sharing.* Despite its low overall average, PR was important in two associations: FA-1 (35.7%, the third most important category in this FA) and FA-2 (25%). This category overlapped with those of 'unity' and resource channeling. In the cases where this was mentioned directly, it was related to problem-solving. In FA-1, respondents mentioned the association's help in dealing with "large problems" with government agencies like the IMSS (5 mentions), the Treasury (3 mentions), the Federal Electric Commission (CFE) (1 mention), and the Federal Environmental Police (PROFEPA) (2 mentions). Finally, there were benefits referring to communities' perception that they could now get more information and advice about different the government programs available (INFO).[76] FA-2 showed the highest percentage in this category (33%). In FA-3, no communities mentioned these two categories as a benefit.

[76] Information sharing is not necessarily a benefit, because it requires that communities have the knowledge of how to use it, and that they actually do use it.

Figure 3.1 Average of perceived benefits across four FAs



RC-A: Resource channeling for agriculture
RC-F: Resource channeling for forestry
RC-BI: Resource channeling for basic infrastructure
PR: Political representation
FS: Forestry services
IC+PG: Investment in common and public goods

3.4.3. Community-level indicators

From the findings above, we see that currently none of the associations provide any specific services directly focused on communities' vertical integration or internal organization. Moreover, leaders of all four associations stated that they tended to not intervene in internal community affairs. However, resource channeling of forestry programs –for instance, through

capacity-building– could contribute to improving community organization if correctly focused.[77] In terms of forest management, the FAs providing forestry services would be expected to have a stronger impact because they are owned by communities –and therefore can incorporate local knowledge– and they apply forest management at the regional level. We also expect FA-3 and FA-4 to have a strong impact on forest fires because of their investment in fire detection and combat. **Table 3.4** summarizes these results. For each category, a grey shade identifies the FA with the highest value.

Table 3.4. Measurable community-level indicators

Level of impact	**Association**[78]			
	FA-1	***FA-2***	***FA-3***	***FA-4***
Vertical Integration (% type IV)	50% (n = 14)	0% (n = 12)	9% (n = 10)	23% (n = 13)
Community organization (% members w/out sub-groups)	34% (n = 14)	25% (n = 8)	67% (n = 6)	54% (n = 13)
Timber stock (% members w/ stable or increased stocks)	58% (n = 7)	60% (n = 5)	100% (n = 9)	0% (n = 7)
FSC Certification (% of members)	40% (n = 14)	0% (n = 12)	10% (n = 10)	0% (n = 13)
Forest fires (% members w/ reduced fires)	NA	NA	100% (n = 6)	31% (n = 4)

The analysis shows a somewhat weak relationship between vertical integration and FA membership. There is wide variation in level of vertical integration within each FA, and an almost complete lack of integration in some FAs. For instance, in the region in which FA-3 operates there are eight (8) communities with sawmills, but only one of those is from FA-3 (9%

[77] One of the challenges noted in interviews is that foresters often prefer applying for programs focused on ecological aspects such as reforestation, soil conservation, or environmental services because of economic incentives (these programs often carry a higher payment for forestry services) and because it is their area of expertise.
[78] Sample sizes vary in each FA because of non-responses.

of membership). In contrast, three of the sawmill-owning communities in the region are not members of any association. In FA-2, there is only one community with a sawmill, but they have been unable to jump start its operation because of lack of financing, and community members expressed that the association had not helped them with this aspect. In FA-1 and FA-4, there are higher proportions of communities with sawmills (50% and 23% respectively). However, the causal linkage between their establishment and FA actions is not always clear; in the three sawmill-owning FA-4 communities and some of the FA-1 communities, the sawmills were established previous to the formation of the association. In addition, all four associations show a marked trend towards vertical *disintegration*. Six member communities in FA-1, five in FA-2, three in FA-4 and one in FA-3 have sold their sawmills and gone back to selling roundwood.[79] This does not mean that FAs do not help communities in their vertical integration. The sawmills in the two communities in FA-2 and FA-3 were established with the support of their associations. And historically, FA-1 was crucial in helping communities obtain loans and other supports for their emerging timber enterprises, and to obtain better prices for their timber, which translated into higher profits for those enterprises.

Regarding community organization, there is a notable trend of formation of intra-community 'work groups' in three of the associations, generally interpreted by interviewees as a sign of internal divisions. In FA-1, nine member communities of those sampled (64%) have internal divisions, and the president of the association estimated that about 50% of all the members have work groups. In FA-2, six members (75% of sample) have done the same; and in FA-4, six (46%). FA-3 has been the most successful FA in this aspect, with only two member

[79] The lower number in FA-3 is due to the fact that historically there have only been 2-3 communities with sawmills in the organization.

communities (33% of sample) forming work groups; interviewees attributed this to efforts by the association's forester.

In terms of forest management, communities in all FAs except FA-3 reported declining timber volumes. This was most obvious in FA-4, where all seven communities that answered the question (100%) reported decreasing volumes. In FA-1, and FA-2, the trend was more ambiguous but still negative overall. In FA-1, three out of seven communities (43%) reported declining volumes, two (29%) reported no change, and two (29%) reported increases. In FA-2, two out of five communities (40%) reported decreases, one reported increases (20%), and two reported no change (40%). The Association's president claimed that overall the forest volumes in the region had remained stable but that the composition had changed towards smaller-diameter trees. In contrast, in FA-3 seven of nine communities (78%) reported *increased* timber volume (the two exceptions reported no change), coinciding with the perceived benefits in resource channeling for forestry programs and forestry services.

Meanwhile, communities reported a reduction in forest fires in FA-3 and the FA-4. This possibly points to the potential effect of investments in fire prevention and combat that both associations have made. In the case of FA-3, according to its forestry services director, forest fires have been reduced from 12,000 ha per year 15 years ago to 50-100 ha per year currently (interview, 06-26-2010).[80] Five member communities (50%) mentioned this trend. The ex-Treasurer of the FA also mentioned the end of illegal logging in the region in the late 1980s and early 1990s as another of the Union's achievements related to forest protection (interview, 10-05-2011). This is confirmed by the regional forest study (ERF), which states that none of the communities in FA-3 have this problem. The leader of FA-2 also mentioned a reduction in illegal

[80] This and the increased timber volumes led the FA-3 Secretary to claim that their forests had been 'totally transformed' (interview, 07-29-2010).

logging as a result of the formation, in the 1990s, of a regional committee which established a regional checkpoint. In the case of FA-4, the forester and four communities (31%) also mentioned a substantial decrease in the frequency and magnitude of forest fires. In both cases, these statements were further confirmed by the analyses in the ERFs. In FA-4, the ERF data showed that between 1995 and 2002 there were an average of 14 fires per year affecting an average of 2,260 ha. From 2003 to 2006, the per-year average number of fires dropped to 6, and the average area affected to 348 ha. The study concluded that the investments in constructing fire towers and increasing the number of combat brigades, as well as increased coordination with CONAFOR, were the main reasons for the decline. Still, these results need to be taken with caution, for two reasons. First, because the causes of forest fires are manifold, e.g. climate variability, and agricultural expansion; and second, because the perceptions of forest fires may be incorrect. In fact, in the cases of FA-3 and FA-4, the associations' own data for its member communities (data not available for the other two FAs) shows that the paterns of perceived fire reduction are less clear, with some recent years showing spikes in the amount of fires.

The impact of FAs on member communities' investments in forest diversification projects is also weak. FA-3 and FA-4 have not developed eco-tourism at all, except in one FA-3 community. FA-2 has promoted eco-tourism and environmental services programs, but it is still an incipient project and some communities complain about the unequal distribution of the benefits, mostly captured by the private properties associated to the region's main timber entrepreneur (see Chapter 4). In the establishment of sustainable forest management (FSC) certification, FA-1 has the highest number of certified communities of all the state's regions (8, 20%). FA-2 was very active in this regard in the 2000s and at one point had almost half of its

membership certified (five, 42%), but to date all have abandoned certification.[81] In contrast, in FA-3 there is only one member community certified (another member is in process), and in FA-4 there are none. These results need to be taken with caution. The wide diversity of members' socio-economic and ecological characteristics –which also influence the observed outcomes– makes it very hard to draw conclusive links. In addition, the analyses of deforestation and forest fires in the ERFs include communities and other properties outside the membership of each of the FAs. Moreover, in the case of FA-4, the association did not exist for much of the period of analysis.

3.4.4. Analysis of communities outside the linkages

Another way to evaluate the impacts of membership in FAs is by looking at the situation of communities outside the linkages. In this case, interviews with non-FA communities illustrate that some communities outside the linkages are doing as well or better than those inside, while others are doing worse. Moreover, the analysis highlights how other linkages can substitute or supplement the FAs activities. In the FA-2 region, I interviewed the leaders of a non-member community, Excelencia (fictitious name). According to informants, Excelencia is one of the most developed communities and among the first in reception of benefits from government programs in the region. The community has received many supports for housing improvements, recently built a large hotel, and the government installed water drainage. Moreover, it has rejected pressures by some members to become internally divided into work groups. According to informants, in both of these processes, the region's main timber entrepreneur –who owns a majority of shares in the community– played a key role. The president of Excelencia's

[81] The reasons for doing so expressed by members were mostly related to the costs and the perceived lack of benefits.

Comisariado explained that when FA-2 formed they considered joining but decided it was not necessary. He argued that the community was doing well on its own, and that they had more government resources than communities within the Union. For him the key was their forester. Residents from a FA-2 member community bordering Excelencia noted that the reason Excelencia had received the state supports for housing improvements while they had not was because Excelencia's leaders were "more active" than their own.

In the FA-3 region, I visited Detractora (fictitious name). Detractora left the association a few years ago because of the high costs of the forestry services. The community members interviewed unanimously agreed that with their new forester they have the same benefits they had with FA-3, except the forestry services cost them almost 50% less. In addition, while FA-3 did not help them with agricultural issues, the new forester does. Also, now they have a portable radio, which they did not under FA-3 because of the costs, and they receive more forestry supports from the government. They are now in a new association which has a tree nursery and sells them the plant cheaper than FA-3 did. Finally, they explained that social supports are channeled through individual community leaders as well as the forester. Similar comments about resources being channeled through local leaders were common in other communities in all four FAs. This region offers other examples of communities which are not in any FA, like Conducto, which has its own sawmill (i.e. is vertically integrated) and has FSC certification (i.e. has sustainable forest management), even though it is divided internally into work groups.

In the FA-4 and FA-1 regions I found contrasting examples. In the FA-1 region, almost all of the communities, with very few exceptions[82] were formally integrated into the association since 2007 (through the PROFAS program). The association's forester and CONAFOR officials

[82] The exact number of non-member communities could not be determined but was estimated to be between 2 and 3 communities, and it was impossible to reach the comisariados of the two identified.

explained that those not integrated into FA-1 did not have any forestry activities at the time and did not receive any forestry-related supports, and this was precisely the reason for not joining an FA.

In the FA-4 region, the community of Desprovista is a formal member of the association but they were unaware of it and have never participated. According to interviewees, the community used to be one of the strongest in Durango, they had a concentration yard in one of the largest cities and bought timber form other communities. They also led the formation of a now-extinct FA. Now the community is in a "very bad" state; it does not receive any government supports in forestry, agriculture or cattle and there is a strong lack of trust between community members. Timber volume has dropped between 50% and 70% according to their calculations. They are internally divided in two groups, and the division was so strong that for years each group had its own separate assemblies. They hire a forester who lives in a faraway city from another state. This year, the forester didn't even visit the community to ask them if they wanted to apply for any programs. The division and the poor quality of technical services, as well as weak leadership and 'disconnection' from regional initiatives, were cited as the main reasons for the community's current state.

3.4.5. Differences between top-down and bottom-up linkages

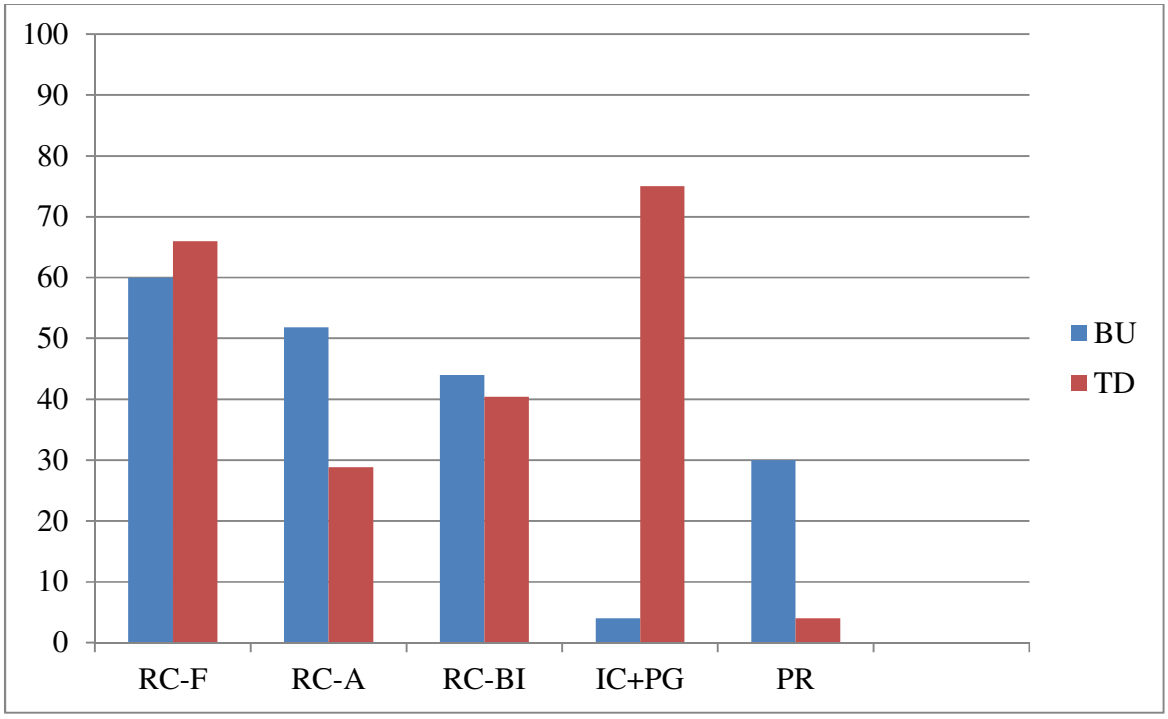
There are some observable differences between top-down FAs (FA-3 and FA-4) and the bottom-up ones (FA-1 and FA-2) in the activities they carry out. **Figure 3.2** summarizes these distinctions. The top-down associations strongly emphasize issues directly related to forestry, and their members perceive them as being dedicated to this. Combating forest fires has been one of their main goals, and they have invested substantially in this as well as in road improvements.

At the same time, there is an evident lack of attention to other issues such as industrialization, commercialization, and price regulation, despite the fact that these constantly come up as some of the main problems in member communities in all four FAs. There are stark contrasts in two categories of perceived benefits: political representation and investments in public goods. Only one of the communities in the top-down FAs mentioned political representation as a benefit (4%), while an average of 30% of the two bottom-up FAs did. In investments in public goods, the relationship is inverted: an average of 75% in the top-down associations mentioned this as a benefit, but in the bottom-up FAs only 4% (1 community) did.[83] In terms of measurable impacts, both top-down FAs have also been more successful at investing in regional projects and as a result show more success in reducing forest fires and, in the case of FA-3, in increasing timber stock.

However, these distinctions, as with the historical origins of each association, are blurry. In FA-3, 50% of communities perceived benefits in agriculture, higher than one of the bottom-up organizations (FA-2). And FA-3 also had a housing program for member communities, though the majority did not identify this as a benefit.

[83] There are also important differences in terms of internal governance, particularly in terms of sense of ownership and participation, which will be discussed in Chapter 5.

Figure 3.2 Differences in perceived benefits between the TD and BU FAs in the sample



RC-A: Resource channeling for agriculture
RC-F: Resource channeling for forestry
RC-BI: Resource channeling for basic infrastructure
PR: Political representation
IC+PG: Investment in common and public goods

3.5. Discussion

3.5.1. Benefits of cross-scale linkages: Beyond CPR management

FAs, as a type of cross-scale linkage, are carrying out activities closely related to CPR management, particularly in providing connections to government agencies to channel resources for forestry-related programs, sharing information about these programs, investing in public goods to improve forest management, collectively providing technical forestry services, and, to lesser extent, diversification of forest activities (e.g. ecotourism). They help deal with some some ecological problems that cross geographic scales, particularly forest fires. Moreover, these activities have important perceived and (for some aspects) measurable benefits at the local level.

In the process, new institutions such as norms about collaboration in cases of forest fires or about collective bargaining for better timber prices have been developed to deal with cross-scale problems. The findings lend support to other scholarship which has emphasized the importance of cross-scale/multi-level forms of collective action for common-pool resource management.

However, contrary to what one would expect from reading this scholarship to date, political representation appears as a central component of almost everything the associations do –participating in decision-making bodies at different levels, providing political muscle, interceding on behalf of communities to solve problems with agencies, lobbying agencies to address needs in basic infrastructure and services, or channeling resources from existing government programs. Theoretically, these findings suggest connections between concepts in common-pool resource (CPR) management and those in social movements literature (see García-López and Villamayor Tomás, 2012; Britt, 2002). Empirically, they highlight the influence of both historical and current contextual factors. On one hand, as the historical analysis of Mexican FAs in Chapter 2 showed, these associations were often created with the objective of being the 'representatives' of peasants in a given region, be it for a struggle such as the anti-concession movements, to deal with the inefficiencies and lack of service-provision by the government, or for the purposes of integrating communities into the corporatist CNC-PRI structure (more on this last point in Chapter 4). From this vantage point, these associations can be seen as a way of reducing transaction costs for the government and for peasant communities. For a community located far away from a main town where information about the programs is provided and where applications are submitted, the FA can help by serving as information-provider and by collecting and submitting the applications, and even by helping fill out the applications. For the government agencies, it means they don't need to visit each community individually or receive each of them

in their offices. With the increasing competition over ever-scarcer resources of government programs, this role becomes even more important, as several of the community leaders interviewed stressed.

Another relevant finding is that one of the most important functions of the forestry programs that FAs help to channel is, at least from the communities' perspective, not really ecological but economic –the provision of local *employment*. As Antinori and Rausser (2010) found in their survey in Durango and Michoacan, forestry-related activities are the main source of employment in the majority of forest communities (but see Merino, 2011). Wage labor benefits have also been highlighted in some other cases of local resource governance (e.g. Daftary, 2010). The activities related to agriculture may also be surprising if one thinks of these organizations as forestry organizations, but it makes perfect sense when one considers that forest communities in Mexico, as in many other developing countries (e.g. India – see Kashwan, 2011), are also *peasant/agricultural* communities.

3.5.2. Top-down and bottom-up linkages

The distinctions between top-down and bottom-up associations coincide with Antinori and Rausser's (2010) findings. The fact that foresters were key actors in the formation of the two top-down linkages in the study explains their strong focus on forestry issues. In addition the two BU associations' emphasis on the *political* dimension –unity and representation– has to do with their origins as grassroots political movements. The differences between top-down and bottom-up recall the work on polycentric governance and the theory of co-production, where different types of production processes are understood to require different forms of polycentric arrangements

(McGinnis, 1999). In other words, different types of FAs and different types of linkages between communities, FAs, and other actors are needed for different activities.

Furthermore, other actors and organizations at the local, regional and state levels play important roles in the provision of goods and services that FAs often do not provide, such as forestry services, legal advice, grant-writing for different projects. The results are inconclusive, yet they also present a conundrum previously noted by some in the CPR scholarship –that different evaluative criteria may be in conflict with each other (see e.g. Kashwan, 2011; Padgee et al., 2006). In this case, top-down linkages may be better at improving forest conditions, but this can come at the expense of economic development, internal democracy and equity. However, these are often hybrid processes (see Chapter 2) and it is impossible to draw hard conclusions from four cases. While the foresters in the top-down FAs seemed to have more control of the organizations, in different periods foresters also have had much internal influence in the bottom-up organizations. Moreover, associations may shift from more bottom-up to more top-down models of governance, as highlighted by all four cases (see Chapter 2).

3.5.3. Qualifying the linkages

While cross-scale linkages can provide some important benefits, they can also be very turbulent (Bray et al., 2012) and can have many failures or dysfunctionalities (Benjamin et al., 2011). In the cases analyzed, I point to several important caveats. First, the perceived benefits as well as their magnitude varied, sometimes substantially, amongst different communities and different members of a community. For instance, in FA-1, four community leaders expressed there were no benefits, but focus groups within the communities said there were some. In focus group discussions in this and other FAs, it was not uncommon for some members to say that they

did not see any benefits. The percentage of communities where at least some members considered there were no benefits was substantial: an average of 50% of member communities in three of the FAs (1, 2 and 4). Most often, interviewees blamed politicking and/or bad leadership.

In FA-1 and FA-2, some also perceived an unequal distribution of benefits amongst members, with a preference towards the larger, wealthier communities. Others considered that there had been benefits in the past but that currently there were fewer benefits or none at all, while others considered the opposite. Most FA-1 communities perceived that the organization had become weaker and currently provided substantially less benefits than in the past. Many lamented that the association did not regulate timber prices or help in timber commercialization or industrialization anymore, despite this having being one of the primary reasons to form the organization. In FA-2 the opposite perception was prevalent with the majority but some communities still felt that the organization had been stronger during the first half of the last decade. In FA-4, both discourses seemed to have equal prevalence. In FA-3, it seemed unanimous that the organization had continued to improve over time.

In other cases, interviewees argued that the FAs were not addressing crucial issues. None of the FAs currently has its own timber business; nor do they contribute to regulating timber prices or commercializing members' timber products, or in generating sustained (rather than temporary) employment opportunities. There were also criticisms that the associations were not doing enough to support agricultural issues and diversification of forest uses (e.g. ecotourism, environmental services). And, on the majority of occasions, they do not help in ensuring the adequate provision of basic services like health and education. None of the four FAs has had much impact on strengthening community organization, partly because they have not been actively involved in this aspect. And only one community in the whole sample (of 49) mentioned

the regional forest study as a benefit in itself. One community leader in FA-1 complained that "there have been studies but no palpable benefits" (interview, 10-12-2011). In ecological terms, aside from continuing problems with fires, pests and soil degradation (as result of overgrazing), the main limitation is the lack of integration of management strategies at the eco-regional level. While the four FAs cover broad areas, none has been able to incorporate all of the communities in their watersheds as defined by CONAFOR's forest management units (UMAFORs). The closest to achieving this is FA-1, but they do not provide forestry services directly. The examples create a contrast with other FAs such as ICOFOSA and SICOBI in Oaxaca (see Chapter 2).

There was also a noticeable failure of all four FAs in influencing federal and state forestry policies. Communities, in fact, rarely mentioned FAs' participation in decision-making bodies as a benefit, though FA leaders emphasized this aspect. A clear example is the failure to influence the delineation "priority areas", a concept CONAFOR developed to determine which areas in a given state have priority for different programs. In the first meeting I attended during the beginning of my fieldwork in 2010, foresters and FA representatives complained about the exclusion of many areas from the priority areas of reforestation and soil conservation programs. CONAFOR officials responded that the areas could not be modified but promised they would take the concerns into account in 2011. However, the same problem was repeated in 2011. The failure is also reflected in the inability of FAs to alter market conditions even as member communities suffer from increased dumping of cheaper timber from the US, Canada and Chile. This relates to the high level of centralization of Mexican forest policy; many key issues such as the definition of priorities and the budget are decided at federal levels, with little or no local or state consultation. It also suggests that, as proposed by Chapela (1998), that part of the problem

is that Mexican FAs have been unable to develop a national coalition to influence national policy-making (see Chapela, 1998).

We also need to recognize the conflicts inherent in these linkages and their capture by certain internal and external actors (see Chapter 4). In sum, besides benefits, it is also important to underscore what FAs –BU or TD– are *failing* to do and what they are doing wrong, what Benjamin et al. (2011) refer to as the functionalities and dysfunctionalities of networks. **Table 3.5** summarizes these issues for the four FAs.

3.5.4 Beyond FAs and towards multiple linkages

Many communities have additional linkages –foresters, other associations, local and regional leaders– that supplement or substitute the services FAs provide and create a more complex network than what is here analyzed. A community leader in FA-2 made this clear when, asked about the benefits of the association's membership to his community, replied that the FA's role was intermixed with those of community leaders and the region's main timber entrepreneur, who had been key in achieving the paving of the region's main road and the development of eco-tourism (09-10-2010). Similarly, a community leader from FA-1 expressed: "[The resources] all come from the *Forestal* [forestry services], the Union, and the government…between all of them together." (interview, 06-02-2010)

Table 3.5. Functionalities and dysfunctionalities of FAs

Category	Benefits	Limitations
Economic	• Channeling resources • Bargaining power for better prices (historical) • Collectively investing in public and common goods (e.g. roads, fire prevention and combat)	• Insufficient resources • Economic capture (corruption and mismanagement) • Unequal benefit distribution • Unwillingness and inability to invest by many communities • Focus on short-term activities • Lack of attention to projects that strengthen community organization or generate employment and income • Lack of vertical integration of communities and trend towards de-integration • Weak community organization, trend towards internal divisions
Social and Political	• Regional unity (social capital) • Political representation (interest aggregation)	• Political capture (use of FAs for career advancement) • Lack of influence at the national level • Control of internal decision-making by foresters employed by the organizations
Ecological	• Technical forestry services: management at the regional scale • Reduction of forest fires • Reforestation and soil conservation activities • Increase in timber stock (only in one FA)	• Declining timber stocks (in 3 of the 4 regions) • Continued problems of soil degradation • Lack of management at the eco-region level

In Durango, there is a practical inexistence of non-governmental organizations (NGOs), –a a common linkage in other Mexican forest communities (e.g. Orozco-Quintero and Berkes, 2010; Chapter 2). This scarcity was reflected in the member communities of the four FAs. As a consequence, foresters have taken over many NGO functions, especially channeling resources

from federal forestry programs and sometimes also from social and agricultural ones. Communities without a good forestry service, even when they are within an FA, can become isolated from government funds, as with Desprovista above. As discussed above, there are also contrasting examples from communities where good foresters, combined with local leaders and timber entrepreneurs, can obtain the same or more benefits than FAs.

The linkages in Durango also show a relative isolation in the sense of not having many connections to organizations at the national level. For instance, when a new national FA was created to group FSC-certified communities, only one community from Durango participated, despite the state having the most communities of this type in the country. To a certain extent, this can explain the failure of these linkages in promoting substantial policy changes in forestry.

Finally, it is important to recognize that there are multiple other factors that affect both FAs and member communities and complicate the analysis of the 'benefits' that these linkages provide. Relevant factors identified in this study include leadership at the community and FA levels, socio-economic and ecological characteristics of communities, and the macro-level political-economic context. For instance, in the case of Desprovista its participation in FA-4 was hindered partly by their high levels of internal conflict and division as well as the poor quality of their forestry services. As was constantly emphasized by interviewees and observations in all four cases, the ability of FAs to provide benefits is also partly dependent on whether local leaders actively seek help from the FAs and from other linkages. As an assembly member in FA-2 expressed, "He who doesn't speak, God doesn't hear." (10-31-2010) Member heterogeneity has also been an issue commonly affecting the internal governance of FAs and their ability to provide benefits; moreover, communities' need of associations and their decision to join or exit

one is partly associated to this heterogeneity (e.g. Bray and Merino, 2004). These issues will be further explored in Chapter 5.

3.6. Conclusions

This study has analyzed the operation and local-level impacts of cross-scale linkages in a sample of 49 communities within four inter-community associations (FAs). It also has provided insights into the differences in two types of linkages –top-down and bottom-up– and the unequal distribution of benefits in the linkages. The results show that inter-community associations can be an important organization in these linkages, but that their role is not only ecological, but also political and economic. Second, I find evidence that there are important distinctions between TD and BU organizations, though there are also many similarities. Finally, conflict and capture emerge as an inherent part of these linkages' operation and even their *raison d'etre.* In other words, the maintenance of the linkages is done to some extent to provide collective goods, but also to facilitate the continued appropriation of their benefits by certain powerful actors.

These contributions can help further refine our understanding of CSLs as a crucial component of CPR governance. Still, much more research is needed to better understand CSLs. For instance, we need to study the factors influencing the success or failure of different linkages, since the design principles of scaled-up forms of collective action may be different from those of local-level governance. We also need to better understand the distinctions between communities inside the linkage and similar communities outside. Finally, which types of linkages –e.g. forester, NGOs, FAs– matter most where and under which circumstances is a key question that has not been addressed substantially in the literature.

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CHAPTER 4

THE POLITICAL-ECONOMY OF CROSS-SCALE GOVERNANCE: EXPLAINING ELITE CAPTURE IN INTER-COMMUNITY FOREST ASSOCIATIONS IN DURANGO, MEXICO

ABSTRACT: *Cross-scale governance has been posited as a requisite for sustainable resource management. However, recent work has emphasized that aside from the 'functionalities' of these arrangements, there are also 'dysfunctionalities' or failures. These failures often relate to the capture of governance arrangements and their benefits by some groups at the expense of others, and to the ensuing conflicts. This paper analyzes elite capture and conflict in two bottom-up (community-created) and two top-down (externally-created) cross-scale systems in community forestry in Durango, Mexico. The study focuses on how local institutions, power inequalities and political-economic factors produce different forms of capture and resistance to it. The results show the prevalence of elite capture in the four networks studied. At the same time, they also underscore that multiple factors combine to produce different levels and frequencies of capture.*

4.1. Introduction

Recent scholarship argues that institutions and organizations connecting different levels and scales of governance –variously referred to as multi-level, networked, nested, cross-scale or polycentric– are essential for sustainable resource management (Berkes, 2008; Brondizio et al., 2009; Heikkila et al., 2011). Until now, this approach has mostly been interested in understanding how these governance arrangements –for instance, the connections a community has with external actors, the information and knowledge shared between them or new rules

created– affect outcomes of resource management. When politics has been inserted into the analysis, it has usually been to highlight the 'empowering' potential of networked/cross-scale connections. Moreover, networks and cross-scale have been implicitly assumed to be self-organized (Benjamin et al., 2011; Knox et al., 2006).

A parallel line of scholarship has promoted a heightened attention to relations of power, hierarchy, control and conflict within these inter-connected systems.[84] As Benjamin et al. (2011: 212) argue, understanding the functionalities and dysfunctionalities of organizational networks "must start with a focus of the tensions between what networks are formed to do… and the power dynamics and internal relationships of networks themselves." This critical approach has recognized that while cross-scale or networked interactions may help to empower resource users at different levels, they can also increase the power and resources of the most powerful actors, perpetuating patterns of marginalization and domination (Adger et al., 2005; Crona and Bodin, 2010; Fabricius et al., 2007; Nayak and Berkes, 2008; Njaya et al., 2012). In this context, actors create and maintain linkages to further their own interests, often in dissonant and uncoordinated ways (Adger et al., 2005). This scholarship ties to a longstanding tradition in development studies that seeks to explain why decentralization projects are often 'captured' by local and regional elites and government actors (Agrawal and Gupta, 2005; Platteau, 2004; Clement, 2010; Poteete and Ribot, 2011; Ribot et al., 2006). From this perspective, decentralized and cross-scale/networked governance is not only a process of 'connecting' levels of decision-making to improve resource management, but also a 'power struggle' to capture resources, control decision-making and maintain or restructure power relations across and within these levels. What causes this elite capture, and how to mitigate or prevent it, have been recurrent concerns in

[84] A similar critique has been leveled on some of the scholarship in common-pool resource studies (e.g. Armitage, 2008; Clement, 2010; García-López, 2009; Johnson, 2004; Kashwan, 2011; Sikor, 2006; Sick, 2008).

decentralization scholarship (see Wong, 2010), but not in the emerging cross-scale governance literature.

In Mexico, a large and successful community forestry experiment (Bray et al., 2003; Bray et al., 2005; Merino and Martínez, 2011; Antinori and Rausser, 2010) coexisted for about seventy years with a highly authoritarian national political system (Bartra and Otero, 2005; Fox, 1996; Gordillo, 2007). Although there is a considerable amount of research on this experience, most studies have focused on individual cases from a few states like Oaxaca, raising doubts about the generalizability of results. Moreover, most analyses have emphasized successes, with only a few have looking at inequalities and power relations or the effects of the political-economic context (Bofill Poch, 2005; Mathews, 2006; Nuijten, 2003, 2004; Pérez-Cirera and Lovett, 2006; Wilshusen, 2009).

This paper draws on the political economy approach to explain elite capture in four cross-scale arrangements –inter-community forest associations (FAs)– in community forestry in Durango, Mexico. Durango was selected because of its importance in the forestry sector and its political history (see Chapters 1, 3). The study addresses three interrelated questions: First, how prevalent is elite capture in the context of cross-scale forest governance in Mexico? Second, what actors are involved in these processes? Third, what factors influence the occurrence of elite capture?

The next section deals with the theoretical work trying to explain why elite capture may or may not occur, and why it may persist over time. It centers on two main factors that have been posited as relevant: power relations and local institutions. Section 3 presents the context and research design. Section 4, which presents the results, show that elite capture is an issue in the four networks studied, but that it takes different forms, levels and frequencies in each. Section 5

discusses how these results may be explained using the theoretical insights gained from the literature. I argue that institutions and power are important but insufficient to account for the observed patterns, and that we need to take into account the political-economic context. Section 6 concludes.

4.2. Explaining elite capture and persistence

Elites are individuals or groups with disproportionate influence over collective action processes because of their higher level of power (Wong, 2010; Schmidt and Theesfeld, 2010). Elite capture occurs when elites control or manipulate governance arrangements to serve their personal interests (Wong, 2010). This commonly includes treacherous behavior such as purposeful deception, corruption, biased selection and exclusion of certain groups from benefits or participation, and avoiding compliance or modifying certain rules to their benefit (Iversen et al., 2006; Labonte, 2011; Schmidt and Theesfeld, 2010; Theesfeld, 2009; Wong, 2010).[85] Elites in common-pool resource governance and community-based development may be local or regional community leaders (e.g. Balooni et al., 2010; Peluso, 1992; Poteete and Ribot, 2011; Ribot et al., 2006; Sikor et al., 2009), but also government agents (Nelson and Agrawal, 2008).

While studies of elite capture provide a useful lens to understand cross-scale governance, they have five main limitations which pave the way for my central arguments. First, elite capture is usually explained as a problem of either institutional design or of socio-economic (i.e. power) inequalities. I argue that each is insufficient on its own; their combined effect needs to be considered. Second, whereas most studies have focused on local elites, I posit that attention should also be paid to political parties, government agencies and external advisors, which are

[85] These processes have also been labeled as "local tyrannies" (Andersson and Ostrom, 2008), and "power abuse" (Theesfeld, 2009).

central in the 'politics of scale' approach. Moreover, there is a need to understand the *strategies* employed by these actors to achieve their goal of recentralization or capture (e.g. Poteete and Ribot, 2011). Third, most of the analyses have focused on the community or local government level. However, in cross-scale governance, there are both downward and upward pressures for accountability (e.g. national policies and regulations and local community rules) and for provision of 'benefits' (e.g. delivering votes to parties and channeling resources to communities), which create both constraints and openings for elite capture and resistance to it. Fourth, while the persistence of institutional arrangements (i.e. path dependence) and elites have been widely-documented, this seems to be at odds with the emphasis on the capacity to self-organize proposed by collective action scholars in common-pool resource governance. On the opposite side, there has been a tendency to assume that elite capture and persistence are inevitable outcomes (Saito-Jensen et al., 2010). This leaves little room for agency of the actors affected, which often mobilize to resist or overturn it.

4.2.1. Local institutions

From the perspective of institutional analysis and collective action studies, elite capture – and the failures of decentralization more generally– has been explained as a problem of institutional design. Institutions structure the opportunities available to different actors and therefore can facilitate or constrain elite capture (Bartley et al., 2008; Iversen et al., 2006; Theesfeld, 2009; Wong, 2010). Four types of institutions are relevant in this study: (1) monitoring, enforcement (including sanctions) and accountability, (Iversen et al., 2006; Labonte, 2011; Schmidt and Theesfeld, 2010); (2) decision-making institutions such as competitive elections, transparency, and secrecy of ballots (Fritzen, 2007); (3) reelection rules, which can

create incentives for good governance (Krishna, 2002; Daftary, 2010); and (d) membership rules, which determine who can formally participate. Norms of appropriateness may also be relevant, as they can help legitimize elite capture when it is considered fair compensation for the time and resources invested by elites in their leadership positions (Labonte, 2011), especially when they do not receive a salary. Finally, the origins of the institutions can also be a determining factor. Projects and institutions designed from the top are more likely to be captured, especially because these projects often fail to truly integrate and empower the different strata of local resource users (Adger et al., 2005; Platteau, 2004; Schmidt and Theesfeld, 2010; Theesfeld, 2009; Wong, 2010). In this context, top-down linkages can serve to politicize resource management, concentrate authority in government agencies, and impose government or NGO objectives for resource management (Nayak and Berkes, 2008; Ribot et al., 2006; Zia et al., 2011; Duffy, 2011).

4.2.2. Power relations

In recent years, some scholars have pointed to the limitations of institutional analyses to explain local-level outcomes of decentralization policies, and to the need to consider the role of power relations (e.g. Clement, 2010; Dasgupta and Beard, 2007; García-López, 2009; Kashwan, 2011; Poteete and Ribot, 2011; Ribot and Peluso, 2003; Theesfeld, 2009; Wong, 2010). In development studies and the scholars dealing with the problem of "access" to natural resources (e.g. Ribot and Peluso, 2003; Sikor and Lund, 2009), elite capture is explained as a result of inequalities in resource endowments or different forms of capital –social, economic and political– which in turn provides differential access to natural resources and development projects. Platteau (2004) points to inequalities in social positions, access to economic resources,

knowledge of political protocols, and education (see also Bardhan and Mookerjee, 2011; Theesfeld, 2011). In the words of Lebel et al (2006: 19): "Power is reflected in, and reproduced by, the capacity to control and capture resources from different levels." Multiple forms of capital are inter-related and inter-changeable and are influenced by previous endowments of capital (Bourdieu 1977, in Wilshusen, 2009). This so-called "first dimension" of power is measured by looking at who participates, who prevails in decision-making, and who gains and who loses (Gaventa, 1980; Lukes, 1974; Wilshusen, 2003).

Elites' bundles of resources allow them to bargain from a stronger position because they have lower exit costs (costs of not reaching an agreement), less risk aversion, lower discount rates (more 'patience'), and can make more credible commitments (Knight, 1992; Theesfled, 2011 for a case study). The key positions that they hold –*positional* power– and their higher levels of education give them privileged access to information, knowledge, and connections/networks to external actors (Adger et al., 2005; Bardhan and Mookherjee, 2000; Theesfeld, 2009; Wong, 2010). Information and connections in turn also allows them to capture additional resources, thus generating a self-reinforcing process (Platteau and Gaspart, 2003). Since often leaders are the main or only contact with donors, this creates major information asymmetries and lack of accountability that facilitate corruption (Schmidt and Theesfeld, 2010). Elites' connections, combined with their leadership position, also give them a 'status' as the only actors capable of channeling resources (Daftary, 2010; Platteau, 2004; Schmidt and Theesfeld,

2010; Wong, 2010).[86] From this perspective, social capital becomes a tool to reinforce resource and power inequities (Wilshusen, 2009).[87]

Positional power also affords control over decision-making, allowing elites to design or change rules to their benefit, sometimes through undemocratic means, or to skirt them, even while they enforce them on others (Andersson and Ostrom, 2008; Kashwan, 2011; Pérez-Cirera and Lovett, 2006; Schmidt and Theesfeld, 2010). The power to make rules and control the agenda affects not only "who gets what, when and how, but… *who gets left out and how*." (Gaventa, 1980: 9) Finally, the fear of punishment or loss of benefits may make less powerful actors reluctant to enforce rules on elites (D'Exelle and Ridle, 2008; Kashwan, 2011; Wong, 2010).

4.3. Research Design and Context

4.3.1. Questions, Sample, Methods and Cases

This project began as an attempt to understand the histories, impacts and internal governance of a cross-scale form of organization –inter-community forest associations (FAs)– on community forestry. FAs are organizations composed of multiple forest communities in a given region, and as such could be conceived of as networks connecting scales and levels (see Chapter 3). Understanding the dysfunctional characteristics of networks requires attention not only to the

[86] As Platteau (2004: 227) puts it: "In a context where the ability to deal with external sources of funding is concentrated in a small elite group, the bargaining strength of common people is inevitably limited…If the intervention of the elite results in an improvement in the predicament of the poor, however small that improvement, the latter tend to be thankful to their leader(s)…"

[87] For instance, in the case of a water irrigation association formed in Bulgaria (Theesfeld, 2009), the manager created the association thanks to the privileged access to information, training, connections and resources he gained in his position in the youth organization of the Communist party. The creation of the association then increased his reputation and his income (from collection and mismanagement of fees from members), which in turn furthered his career in politics. In the case of forest communities in India, local leaders' intermediary role between community members and forest officials in the process of land titling allowed them to extract benefits from both sides and to influence community members' land titling decisions to their advantage (Kashwan, 2011).

their impacts (governance *by* networks) but also on their internal operation (governance *of* networks) (Benjamin et al., 2011). Here, I try to determine how prevalent elite capture is in FAs and what could explain the observed outcomes. I also aim to move the discussion forward by proposing to look at elite capture in terms of degrees rather than simply its presence or absence. Initial information about the origins, year of formation, and membership size of a sample of fourteen FAs in Durango was obtained from a 2007 survey of forest communities in Durango in which I participated (see Antinori and Rausser, 2010; Chapter 2). The survey found 14 FAs operating in Durango. From these, I selected four –two created by communities (bottom-up) and two created by external agents (top-down)– based on the hypothesis that top-down linkages would be less accountable downward (to communities) and consequently more susceptible to elite capture. Selection of cases was thus purposeful, seeking to achieve maximum variation in the variable of interest –organizational origins (Gerring, 2007). At the same time, I attempted to control for other independent variables expected to influence institutional performance, mainly group size and forest area. Within each FA, I tried to obtain information from as many of the member communities as possible. A total of 49 communities from the four FAs –the full membership in FA-2, 3 and 4 and 14 of the 40 communities in FA-1– participated in the study (see Chapter 1 and Table 4.1 below).

There was no knowledge of elite capture outcomes at the outset; based on the existing literature, there was some (limited) knowledge about the successes of some of these associations. Based on the review of the literature, I hypothesized that bottom-up origins and strong internal institutions (transparency and accountability, enforcement, voting and participation, alternation of leaders, norms about corruption) would be associated with low levels of elite capture. I also expected that the unbalanced power of some elites would facilitate elite capture and persistence

through, among other things, subversion of existing institutions, control and manipulation of information, threats and lies, and clientelist exchanges.

The data for this analysis was gathered as part of a one year dissertation fieldwork in 2010 in Durango, Mexico. The unit of analysis is each forest association as a space of elite capture at *different points in time*, and the outcome observed is the multiple occurrences of elite capture and its intensity and frequency. The comparative case study method provided a structured approach for analysis, allowing for close examination of the subject of interest (George and Bennett, 2005). The methods included archival research and semi-structured interviews of key actors within each forest association –current and past elected leaders, community representatives– a as well as external stakeholders (government officials, foresters, etc.), participant observation of FA meeting activities, and focus group discussions and semi-structured interviews with community members. A total of more than 300 interviews were conducted in the 49 communities selected (see Chapter 1). Interviewees were asked about key internal governance factors of FAs such as decision-making and election rules, leadership, and relations to other actors. Information was coded according to these factors (themes) as it was manually transcribed and then searches for keywords (e.g. capture, corruption, leadership, etc.) were used to track down the information. These multiple sources provided triangulation that served as a safeguard for the reliability and validity of information. The historical analysis, meanwhile, allowed me to observe how changes in institutions and/or power relations influenced, and were influenced by, elite capture in an interactive process.

4.3.2. Mexico and Durango

The Mexican Revolution of 1910-1917 led to a substantial redistribution of land to communities over several decades. However, it also resulted in an authoritarian political system that lasted seventy years and was characterized by a one-party dominant system --the Revolutionary Institutional Party (PRI) governed the country uninterruptedly for seventy years--, corporativism (social organizations controlled by the state), clientelism and patronage (benefits in exchange for political support), and *caciquismo* (peasant organizations controlled by local *caciques* or political bosses).

In the 1980s, Mexico began a process of democratization which intensified in the 1990s and culminated in 2000 with the election of the first opposition President in the 20th century (from the National Action Party, PAN). This democratization was expected to reduce clientelism and the power of *caciques*. Yet changes have been slow, uneven and contradictory, and vary across states; in some cases, traditional patterns of governance have readapted and reconfigured (Hamilton, 2011; Rodríguez Araujo, 2009; Olivera Rivera, 2010; Chapter 2). In some cases, reforms marginalized some previously dominant caciques and clientelist structures tied to the National Peasant Confederation (CNC, the corporatist peasant branch of the PRI) but these were replaced by new, "*techno-caciques*" –entrepreneurs with political connections (e.g. McDonald, 2001; 2003).

These historical patterns have combined with local institutions to generate different outcomes. For example, in his analysis of the governance of a timber marketing fund, Wilshusen (2009) finds that informal lending practices were facilitated by the lack of rules about the use of the fund's money and the lack of monitoring and enforcement. Moreover, relationships with the fund's managers, especially family (*compadrazgo*) ties, were crucial in determining who

captured the money. These informal loans were sometimes used by local elites to lend money to third parties, further reinforcing their status. In some cases, these were longstanding elites, but in others, new elites emerged. Wilshusen also finds that informal lending and elite capture repeated itself continuously in the histories of both the FA and member communities. In other words, they were part of "broader processes of elite persistence based in long-standing practices." (Wilshusen, 2009: 402).

Mexico's experience provides contradictory theoretical expectations. The documented successes of the community forestry sector imply strong local institutions that should help prevent elite capture, while the historical tradition of centralized governance should lead to strong capture. In Durango, these issues acquire particular relevance because of several factors. Durango is one of Mexico's most important forestry states, with a rich history of forest politics. In addition, Durango offers a test of the relevance of political context for community forestry and FAs because, despite the political openings occurring at the national level, it has remained a bastion of the PRI. The PRI has never lost the governorship and most municipalities, particularly the rural ones where forest communities are located, and in federal elections the state has never voted for the opposition. Forest communities and their associations have been a crucial part of this tendency.

4.4. Results: Elite capture in cross-scale linkages in Durango, Mexico

In this section, I trace out the processes of elite capture in each of the four FAs in the study, focusing on the historical events where elite capture was a central issue. **Table 4.1** presents a summary of the results. Given the variation in institutional origins and other institutional characteristics of each FA, we would expect elite capture to occur in some cases and not in

others. Yet elite capture was found in all four associations. At the same time, the type (economic or political), degree and frequency (recurrence) of capture did vary across different organizations. There were also a very similar set of elite actors involved in the process: foresters, FA leaders, politicians and timber entrepreneurs, which can be labeled *elite persistence* (see Wilshusen, 2009). These results will be explained in Section 4.5.

Table 4.1. Observed elite capture in four FAs

Name	Origins	Political use*	Corruption*	Unequal benefits*	Frequency	Elite groups involved
FA-1 (N=14)	BU	36%	21%	27%	High	Elected leaders Large communities Forester PRI
FA-2 (N=12)	BU	25%	0%	25%	Low	Elected leaders Timber entrepreneur City councilmember Forester PRI
FA-3 (N=10)	TD	18%	36%	0%	High	Elected leaders Forester Large community Timber entrepreneur PRI
FA-4 (N=13)	TD	15%	0%	8%	Low	Elected leaders Forester PRI

* Percent of sampled member communities stating this as current problem

4.4.1. FA-1: Social movement turned political organization

From the table above, elite capture appears to be the highest in FA-1. FA-1 originated in the mid-1960s out of a peasant struggle against the concession of vast areas of forests to a private corporation in the most important forest region of Durango (see Chapter 2). Community leaders, including CNC operatives, organized the struggle to distribute the company's lands to landless peasants in the region and allow communities to control the extraction process. The political-economic context in which FA-1 emerged, however, implied that this support was given in exchange of incorporation into the state structure through the CNC.

One of the FA's main problems has been elite capture by leaders, for both political and economic gain. Thirty-six percent (36%) of members identified political use as a current problem, while 21% identified corruption. According to interviews, this problem started in the early 1980s, when a *cacique* from the region took hold of the association. During the twelve years he held power directly or behind the scenes, his mismanagement of the organization's sawmill and timber marketing service led to its demise and to his personal enrichment. The FA also became a "political trampoline" or "ladder" from which leaders could achieve higher positions of power. Two union presidents went on to become municipal presidents. Others were appointed into positions within the local government such as councilmembers, or elected as presidents of the local CNC committee or other organizations such as the local cattle ranchers' association, also integrated into the CNC. Financial mismanagement and corruption became a common strategy to raise the needed campaign funds. These processes, in turn, generated internal power struggles between competing factions looking to lead the organization.

The same story has recurred since, showing path dependence.[88] The 1998 Activity Report from the association's governing board complained about the mismanagement of a $10 million MXN pesos project for a tree nursery handled by the previous board. An equal sum was spent by the complaining board for a timber commercialization project that lasted less than 3 years. The president, described as a *cacique*, went on to develop a restaurant and personal ecotourism venture. The following leader, B.R., described by many as an "astute politician" who was well known, or "made himself known" (interview 08-04-2010), collected contributions from member communities for subsidized fertilizer and oat seeds that never reached their intended beneficiaries. This leader was instrumental in promoting a change in the organization's structure imposed by the National Forest Commission (CONAFOR, see Chapter 2). His support for this policy further cemented his position within FA-1 and significantly advanced his political career. By creating a new parallel association, he was able avoid the two-term limit in the original FA-1 bylaws and extend his presidential term for 3 more years. This in turn allowed him to expand his resource capture by accessing a whole new set of resources given by CONAFOR to the ARS associations, and to delay internal investigations about his financial management. It also solidified his position in the presidency of a state-level forest association he had helped create, which in turn led to his recent appointment as secretary of a national forest association. While these positions do not entail salaries, they do provide access to other funds for capture – for instance, B.R. obtained a large grant to develop a website for the state-level association, which he never completed.

These processes have been embedded in a recurring conflict between large communities, who represent the largest share of wealth in the association but are a minority in numbers, and

[88] The recurrence is nicely captured by this citation from a community leader: "the Union has always been like the *ejidos* – with the same problems of bad management (corruption)." (interview, 04-06-2010)

small ones, who are many but poor, over control of the organization. Twenty-seven percent of sampled communities perceived inequalities in benefit distribution, particularly in relation to B.R., who according to many interviewees (mostly of small and poor communities) was corrupt, politically-motivated, and biased towards the larger communities. One community leader complained: "It's always them [the larger communities], we are only taken into account when a [voting] majority is needed." He explained that B.R. would often hold meetings about government programs but would only invite the larger communities.

These inter-community conflicts were also related to the political aspirations of competing groups and interventions by external actors, particularly a forester, J.J., who until 2010 directed the region's main forestry services (the privatized remnant of the government-run services). The forester enriched himself through these services. He was described by a government official as "one of those who become inflated in a position of authority" (interview 02-24-2010), and others referred to his forestry services as "captive". In 2007, when FA-1 became a top-down regional silviculturalist association (ARS), J.J. became the association's secretary, despite a longstanding rule in the union against the incorporation of people external to communities.[89] A year later, he became the representative of the municipal CNC council. Then, in the 2010 state elections, he vied to become the PRI's candidate for municipal president. A community leader from one of the region's largest communities was also seeking this candidacy, and to this end was trying to become president of FA-1, which also had elections that year. J.J., however, tried to block the community leader from reaching the FA-1 presidency by using a loyal friend as opposing candidate and mobilizing the communities under his forestry services (mostly small-and-poor) to support him. Many of these communities voted in the FA election, despite their disqualification

[89] This rule was eliminated with the new bylaws designed by CONAFOR for all the ARS, which contemplated that associations could have non-members occupy positions in their governing boards.

based on a rule making voting rights contingent on being up-to-date in membership payments. As a result, J.J.'s friend won the FA presidency. Eventually, J.J. won the party's candidacy, and the new FA president used his position to accompany him in his campaign throughout the region. After winning the municipal election, the forester rewarded the FA-1 president by appointing him municipal treasurer, a position with a salary of approximately $50,000 USD a year.

The internal election also highlighted how the organization is part of the larger clientelist and corporatist politics in the region. As one of the original leaders stated: "the Union was always managed as *priísta* [part of the PRI]." (interview 03-10-2010) Thus, it had a duty to support the PRI's candidates. While the change into ARS legally prohibits the association from engaging in partisan-political activities, historical practices have been maintained, another indication of path dependence.[90]

Both the electoral process and the forced change into ARS have been a major source of conflict in the organization in the last few years; some resist these processes as a strategy to protect autonomy and others to maintain past privileges. The transition into ARS was consistently criticized by interviewees as a way for the PAN party to marginalize pre-existing *ejido* unions, increase support in rural areas and create new corporatist organizations which would serve their party rather than the PRI.[91] The election, meanwhile, was criticized by some leaders for its lack of fairness and the 'politicization' of the organization.

4.4.2. FA-2: Bottom-up forestry services

Elite capture has also been problem in FA-2, though not to the same degree and frequency as FA-1, and not related to corruption but rather to political use of the organization and some

[90] As the FA-1 president stated, politics still 'infiltrates' the association and this "is inevitable because we are still social actors." (interview, 03-05-2010)
[91] Similar criticisms were made nationally by other FAs and academics (see Chapter 2).

internal inequalities in the distribution of benefits. FA-2 emerged from a struggle by communities against a top-down *permisionario* union created in 1986 and controlled by the region's main forester, increasingly disliked for perceived mismanagement of the forest and of the organization's resources. With the 1992 forest law, which privatized all forestry service concessions (see Chapter 2), the forester –knowing that he would probably be fired as union director– falsely claimed that the law implied they had to dissolve the *permisionario* union and pay severance benefits to all the employees.[92] He offered to pay the severance in exchange for the Union's infrastructure, which had been developed through collective investments by members. Through manipulations of membership (e.g. corruptly adding new members) and the voting process, and against the will of the vast majority of original member communities, the forester kept the union's infrastructure. This allowed him to develop a large and profitable forestry services business.

Seven of the nine original member communities left the union and formed FA-2 in 1994 to administer their own forestry services with autonomy from a forester. However, over the first eight years, taking advantage of a weak leadership, the FA's forestry service director began to "control everything", becoming the organization's legal representative. During this period, the Union did not submit the required fiscal reports to the Treasury department. The FA's leadership, described as "frustrated businessmen" trying to use the union to channel funds for personal projects, also attempted to solidify control over the organization.[93] In 2002, right before the elections for a new leadership, they maneuvered a restructuring of the Union's statutes in order to allow private landowners to become members of the organization. Apparently, this was an

[92] The forester very candidly explained to me that he did this because he knew that he could be fired at any point and that he "did not want to fall behind" (interview, 08-13-2012).
[93] One of the members of that group has a small eco-tourism venture, a trout farm and a water-bottling company, which were built with funds channeled by the FA for his community, but now are his personal businesses.

attempt to incorporate allies into the union in order to obtain a permanent majority and perpetuate their leadership.

However, the previous dramatic experience with elite capture had left most members very aware and prepared to respond. A new leadership was elected almost unanimously and they quickly re-organized the Union to prevent elite capture. They started to file their tax returns and submit required fiscal reports, replaced the forester and clarified authority roles by giving elected leaders the exclusive authority to represent the union and emphasizing that the forester was simply an employee of the association, not part of its leadership. They also hired an accountant to improve financial transparency. These mechanisms seem to have worked, as the Union –at least from the members' perspective – does not show a problem of corruption or personal enrichment. Contrary to leaders in FA-3 and FA-4, the president of the union lives modestly in his community, where he works the land as any peasant would.

While economic capture did not emerge as a problem in FA-2, 25% of its members still perceive that the association is used by its leaders to achieve personal political goals. The president has in recent years benefitted from his position to advance his political career and, recently, became the region's representative to the CNC, a position widely understood as springboard to others. He also gained positions as representative in SEMARNAT's Central Consultative Council and CONAFOR's State Evaluation Committee, which enable him to become informed about programs and lobby in favor of certain projects, giving him power as a 'broker' for others. A previous member of the FA's governing board and strong ally of the president, who now serves as the FA's main external advisor, is a longtime PRI operative from the region and is now a municipal councilmember in Durango city.

This example underscores another dimension of the political use of the organization: its direct connections to the CNC and PRI since its beginnings. This relationship, aside from helping the association obtain benefits, has also served the party to influence electoral results, although not in such a blunt way as FA-1. The PRI uses the Union's leadership to mobilize peasants for their activities, and to publicly express support for the state and municipal governments and the party's candidates. This generates permanent exclusions of those who are not part of these arrangements. A community leader from the opposition party (PAN) argued that he would like to be Union leader but knew that they 'would not let him'. And the last opposition candidate for the presidency argued that he was marginalized because he was 'a working man, not a politician'.

The region's main timber corporation has also been involved in attempts to influence and capture the organization and its resources. The corporation's CEO is the region's most powerful man and is described by some as a *cacique*. He has acquired most of the region's private lands over the years (over 120,000 ha), and he has 50%+ shares in the region's most important community (his son is the president of the *comisariado*). His second-hand man in the corporation was recently the president of the governing board of another community. These communities and others provide him with inexpensive timber. According to some interviewees, the CEO has prevented one of the communities from contracting the association's services and another from even becoming a member. With the PROFAS program, he was able to create his own association, which he has used to capture most of the state and federal resources for eco-tourism and wildlife management ventures in his properties and the community he controls.[94] Eventually

[94] FA-2 members had created their own parallel organization, but it was labeled as 'local' rather than regional by CONAFOR. The timber CEO's association was given the 'regional' title, thanks to his connections to the government. In 2007, CONAFOR decided it would only fund 'regional' associations. Thus, FA-2 members were forced to join the other association, though contrary to FA-1 they decided to maintain their original organization functioning.

the FA-2 president also benefitted, as he was elected as president of the association, a position he still holds and which has given him additional access to decision-making bodies and resources.

Finally, as in FA-1, FA-2 has suffered a similar but less vicious conflict between two groups, enhanced by the internal electoral process and the perception that the leader was serving mostly the interests of the sub-region where the largest and wealthiest forestry communities are and where the timber entrepreneur operates. The other sub-region is mostly agricultural and its members have felt somewhat abandoned by the FA. In the last election, this group, allied with the 'failed businessmen', tried to become elected into the governing board, but lost by one vote.

4.4.3. FA-3: Top-down forestry services

FA-3 was created as a forestry service union in 1989, after the 1986 forest law (which created a perceived requirement to form a new association) and mobilization by leaders from a few communities, private landowners, and an up-and-coming forester from the region's largest community (Mr. S.), to change the existing government-appointed forester (see Chapter 2). Mr. S., who had been the right-hand man of the region's previous forester when the services were administered by the government, had a strong hand in creating FA-3. He helped draft the bylaws, and was selected as the association's vice-president. After a year, he was named the organization's forestry service director, becoming both employee and employer at the same time, an obvious conflict of interest.[95] In the following years, strong disagreements emerged between the Union's president and Mr. S. over the handling of the Union, particularly its finances. Apparently, the Union's president would not let the forester manipulate him and opposed the forester's control over the organization, but party politics were also involved. Regardless, in 1995 the forester mobilized key members to elect a new president. After more than fifteen years,

[95] There were no rules in the bylaws against this.

the second president, Mr. N., still holds his position. This may be in violation of the association's bylaws, which require a leadership change every two years, but without specifying a maximum number of reelections. The governing board is completely controlled by both of them –the secretary and the oversight council are Mr. N. and Mr. S.'s uncles, respectively. Moreover, the president is perceived by many as a marionette of the forester. There were also issues with the excessive decision-making control exerted by Mr. S.

The main problem with FA-3 has been with economic capture by the leadership and Mr. S., as perceived by 36% of members (see **Table 4.1**). For instance, members contribute $1/m3 of wood yearly for a 'road improvement' quota. This amounts to almost $200,000 Mexican pesos (about $20,000 USD) per year. However, some communities said their roads had never been fixed and the forestry services director could not explain exactly how the quota was being used except for fixing some potholes. Several communities also complained about having paid for a study of a proposed electrification project that has never been carried out. The forestry service fee –which is raised annually and is the highest in the state (and according to some in the country)– together with the 20-25% fee leveled on all programs channeled to communities, was a source of constant complaints (by more than 50% of members) and another mechanism through which the forester is allegedly enriching himself. There is little transparency or justification about what the money will be used for, and no monitoring. There were also some recent problems with the federal Treasury for apparent tax evasion.

The forester's control over the association has also allowed him to influence the organization's forest management activities for his own benefit and that of his friends. Having the power to decide to which programs to apply for each community, Mr. S. has an incentive to focus on programs where he can charge the 25% fee. A top CONAFOR official in Durango

noted how FA-3 kept requesting funds for reforestation despite the fact they had few areas left for this activity, because 'that is what pays'.[96] One interviewee also claimed the forester designates as extraction areas the locations where his brother (who owns a crane) has contracts to extract timber and receives money to change extraction areas in other cases.

Meanwhile, the association's president took $10,000 Mexican pesos from a community leader promising to obtain a solar panel for his home, but the panel was never installed. He has also developed a timber extraction business in the region which has provided another venue to skim off funds; for instance, he has taken timber logs from community members in several communities with unfulfilled promises to pay later –he owes one community leader $30,000 pesos. Similar stories of debts were recorded in another community. Another forester in the region (Mr. S.'s *compadre*) noted that these 'tricks' were the reason why the president did not visit communities.[97]

The association's president and the forester have also used their positions to escalate into political positions, though only 18% mentioned it as a current problem. The forester's role in the association propelled him into fame and has given him access to other positions of power. He has won state and national awards, and has served as the president of the state's association of foresters and on several federal and state advisory committees. In 2010, he was appointed as head of an important state government agency dealing with forestry issues. For his part, the president has held elected positions as municipal comptroller and currently as councilmember. Both are positions with a salary of about $20,000 USD a year. Community leaders complained

[96] Nevertheless, the focus on reforestation in this region has had significant positive impacts –it is credited with being one of the reasons why timber stocks have increased over time. Moreover, it is one of the main sources of employment (albeit temporary) in forest communities.

[97] My own personal experience with Mr. N. confirmed this perception. Even the current forester, in reference to one of his debts, said: "we all know how he is."

that Mr. N. only visited them when he was campaigning for these positions.[98] I observed how he brought food bags to several communities supposedly on behalf of the Union, but the timing coincided with his campaign for councilmember. Mr. N was also elected as vice-president of the state-level forest association, and is almost guaranteed to become its next president. These positions have increased their different forms of capital, reinforcing their power.

As in FA-2, a private timber corporation was an important elite actor. In this case, however, the corporation is a member of the association. It is run by one of the wealthiest and most powerful families in the state, and is a strong ally of the forester; it is credited with having being behind Mr. S.'s appointment to the state government. The corporation is the one which sets the timber prices in the region. The presence of the corporation also creates a disincentive against the development of vertically-integrated forestry enterprises in member communities, because corporations make most profits buying timber logs rather than sawn wood. An interviewee who also worked for his company explained that "they are the ones who manage the FA together with [the largest community]." (interview, 09-27-2011)

Despite these processes of capture, FA-3 has remained relatively conflict-free throughout its history and has only lost one member during its 20-year existence. This is reflective of the leaders' strong control over the organization, but it also implies that elite capture, though recurrent, is sufficiently small so as to be hidden from public view and be tolerated by communities.

4.4.4. FA-4: Top-down forest management organization

FA-4 was created by the region's main forester, Mr. G.M., in compliance with the 2003 Forest Law, which he perceived as a mandate to create new silviculturalist associations. Mr.

[98] This critique was also leveled against the leaders of the other FAs.

G.M. was a wealthy and well-connected individual in the region –he had been there for over 20 years since being appointed by the government to direct the region's forestry services. In the 1980s, he created a forestry service association (much like FA-3 and the predecessor of FA-2), in which he controlled things despite formal community ownership.

With the privatization of the forestry services under the 1992 law, G.M. became the owner of the services, although the association remained in place. Almost all of the communities he serviced remained with him. During this period, G.M. accumulated substantial wealth and cultivated connections –he is close friends with the forester in FA-3 and with the previous secretary of the state's environment ministry. When the 2003 forest law came into effect, G.M. mobilized his communities to form the new *silviculturalist* association. Not surprisingly, the association's first and second presidents were described as 'front men' for G.M. Communities complained that little information flowed in those periods, with hardly any meetings or visits from the leaders to the communities. During the three-year term of the second president, for instance, the association only met twice and there were no visits to member communities. The projects implemented were selected by G.M. The association's office space was, and still is, a desk in G.M.'s office, and the association's forestry technician is also an employee in the same office. The association's meetings, which for the first two presidencies were directed by G.M., are still held in his private property in the mountains.

From the results in **Table 4.1**, FA-4 appears to have the lowest levels of elite capture, mostly associated to the political use of the organization by the president. There were some indications that the forester has used the association and its resources for his private benefit. For instance, he has been using the association's equipment (computer and plotter) for his own private forestry services. Recently there were some tensions when the forester apparently failed

to report that the association's funds for a project had been deposited to him. However, contrary to FA-3, where the forester has been able to maintain almost total control of the organization, the forester was never directly in the governing board, and thus his ability to capture the organization was more limited. Moreover, the forester already had wealth, and, contrary to the foresters in FA-1 and FA-3, was not interested in politics. Thus, while he may have benefitted economically, this did not represent a substantial issue among members (no communities mentioned the forester in relation to financial mismanagement) and, paradoxically, his control over the organization reduced political capture by the leaders.

Recently, the power within the association has begun shifting due to the current president's interest in making the association more autonomous from the forester and reducing external elite capture. Yet the president's move may also signal an attempt to use the association for his own private objectives. He became part of the leadership of a newly-created cattle rancher's association in his municipality, and is also the president of the local chapter of the CNC. And in 2010 he tried, unsuccessfully, to use his position as a springboard to becoming the PRI's candidate for municipal president in his region. This political use of the organization was mentioned by 18% of members and several external observers. Two external observers added that the president has been insisting on positioning his sons in local political and administrative positions. In several programs in the FA, he hired family members to carry out key tasks.

These issues have created a rift between him and the region's PRI operatives and elected local officials, as well as unease among some community leaders. Nevertheless, contrary to expectations, the extent of elite capture is much smaller than in FA-1 and FA-3, and to date there have not been any strong conflicts or small-versus-large-communities dynamics.

4.5. Discussion: From benefits to capture

4.5.1. Multiple actors, multiple captures

The results of this study show that elite capture and conflicts are ubiquitous to cross-scale governance of forest commons in Durango, Mexico. They also point to the numerous actors, internal and external, that are involved in these processes, and to the strategies employed by these actors to capture resources, but also to avoid losing authority or to recentralize it.

Foresters represent one of the main elite groups capturing these organizations. Their status as elites is longstanding and widely recognized. As a community leader stated, "I do not see any foresters doing badly." (06-11-2010) Socially, they also command high prestige because of their education and 'technical know-how', which is necessary for communities' forestry activities. Conversations with leaders of other associations and external observers highlight that the capture by foresters in FAs was a commonality in all the new ARS associations created in Durango. Foresters were the main promoters or direct creators of these associations, which they saw as a new source of funding. In the field, it was common to hear people refer to these FAs as 'X forester's association'. CONAFOR paid the associations to hire their own forester, but usually the person hired was already working for the established foresters. In several cases, the associations became inoperative and the foresters kept their equipment (e.g. computers, plotters).

There may even be an inherent contradiction between foresters and FAs. As a government official explained: "…[the foresters] have participated so much in structuring them [the FAs], promoting them, drafting their bylaws, registering them, that there comes a moment where they say 'it's mine'.…And that's where the disjunctive is, and conflict comes in." (interview, 08-20-2010). This conflict, he went on to explain, lies in the fact that associations need income, and since the membership dues are not enough, the only other source of viable income is providing

technical services, like the ones private foresters currently provide. Thus, foresters have an incentive to maintain associations in a dependent state, so that they do not become the competition. These findings partly confirm Barsimantov's (2010) conclusion that foresters seem more focused on capturing resources than on promoting community empowerment and good forest management. Foresters also are in some aspects similar to McDonald's (2001) "*techno-caciques*" –professionals who are able to deal with new market and administrative issues but still remain connected politically. Still, these propositions must be nuanced by highlighting foresters' positive contributions to FAs (see Chapter 3, 5) and noting how their impacts depend on several contextual factors.

A second habitual group of actors in the stories of elite capture is FA (peasant) leaders. They are politically connected to the the PRI directly (e.g. as president of the local party council) or indirectly through the CNC or other related associations. During the 2010 state elections, all of the FAs' leadership, together with foresters and timber entrepreneurs from all regions, attended public activities in support of the PRI. In a campaign meeting with the PRI candidate for governor, a well-known forester, speaking "on behalf of the forest sector", talked about the PRI as "our party" and said it should "count with our vote" (participant observation, 31-May-2012). The clientelist nature of the exchange was obvious. As an FA leader said: "we are working to support the candidates but *in exchange* for not being forgotten" (ibid). The patterns of clientelism and misuse of power have interesting parallels to the work on the "dark side" of leadership (Luthans et al., 1998; Theesfeld, 2009), and underscores that more attention needs to be paid to the negative characteristics and behaviors of leaders, especially in contexts with a history of authoritarian, clientelist and corporatist politics. The role of timber corporations, on the other hand, is not surprising in retrospect but was certainly unexpected, given that there has

been historically a conflictive relationship between peasants and corporations in the forestry sector and are often seen as two separate spheres of governance.

Interestingly, these patterns mimic those at the community level, where histories of corruption and mismanagement of funds by community leaders and political bosses were reported in almost all communities I sampled. In this sense, these processes represent longstanding practices of elite persistence, as in Wilshusen's (2009) study. Yet the results also highlight that these 'capture' processes engender conflict and resistance from different actors within each network, some of which seek a more just or equal distribution of benefits (like the smaller and marginalized communities in FA-1 and FA-2), and some of which want to be in a position to capture the benefits. In these resistances, members use a variety of strategies. The origins of FA-1 and FA-2 are examples of associations struggling against previous top-down linkages captured by external actors through grassroots mobilization. Some have chosen an 'exit' strategy of disaffiliation (as with some members in FA-1 and FA-2), and others use everyday practices of resistance or 'weapons of the weak' (Scott, 1985) such as verbal forms of de-legitimizing and foot-dragging on paying membership dues and attending meetings.

These resistances show that despite the prevalence of elite capture in community-based natural resource governance, it is not an inevitable outcome. In the contestations and turbulences that often take place in these settings, horizontal linkages and mobilization between communities, as well as connections to external allies, can advance the devolution of authority to local users and alter local power relations (e.g. Agrawal and Ostrom, 2001; Adger et al., 2005; Britt, 2002; Chapter 2; Cronkleton et al., 2008; Fox, 1996; Kashwan, 2011; Poteete and Ribot, 2011; Saito-Jensen et al., 2010). Local and regional leaders may also help avoid interference by external actors (e.g. Balooni et al., 2010) –as seems to be happening with FA-4; or serve as

"political brokers" that organize and empower previously marginalized groups to pressure elected leaders, increasing elites' accountability (e.g. Daftary, 2010; Fox, 1992), as with the subgroup within FA-2 led by the 'failed businessmen'.

4.5.2. Explaining elite capture and persistence: Power, institutions and context

These findings also underscore important differences in the *degree* of capture in the four FAs and in the main actors involved (see **Table 4.1** above). The question, then, is what accounts for these differences and why are certain actors –foresters and PRI-associated peasant leaders– the ones recurrently dominating this process? I argue that these differences are the product of a combination of institutions and power relations embedded in a particular political-economic context. **Table 4.2** offers a summary of the explanatory processes observed.

Table 4.2. Institutions in the four FAs

FA	**Potential explanatory factors**							**Elite Capt**
	Origins	***Voting***	***Meetings***	***Particip.***	***Represent.***	***Transpar.***	***Enforce***	
FA-1	BU	Equal	1/month	Open	Elected leaders	Moderate	Very low	H&F ****
FA-2	BU	Equal	1/year*	Open	Elected leaders	Moderate ***	Moderate	L&I ****
FA-3	TD	Unequal	1/year	Limited	Forester	Moderate ***	High	H&F ****
FA-4	TD	Equal	1/year*	Open	Elected leaders**	Moderate	Low	L&I ****

** In violation of bylaws*
*** Forester until recently*
**** Have accountants who provide reports to members*
***** H&F = High and frequent; L&I = Low and isolated*

4.5.2.1. Local institutions

Local institutions play a crucial role in the observe outcomes, but as we will see they cannot fully account for them. Voting and representation rules were found to be among the key institutions (**Table 4.2**). In FA-3, the share-based voting system clearly helps maintain the power relations and the elite capture in place. When the association was created, all of the founding members acquired equal shared. However, when new members were incorporated, this equality was lost. Today, this system ensures that only two members (the forester's community and the timber company) control more than 50% of the votes. Thus, it creates a strong incentive against any opposition, because without convincing one of these two members (which are strong allies of the forester), it would be futile to present any proposals that contradict the leadership's positions. Conversely, it is not so clear that voting rules on their own constrain elite capture in the other three associations, which have equal voting rights.

The forester's selection as the legal representative of FA-3 is also critical, as this position is a key aspect of his power. In contrast, in FA-2 the change of legal representation from forester to peasant leaders was done precisely to avoid elite capture, and it seems to have worked in the economic dimension. In FA-4, representation was in the hands of the forester until the new leadership began to exclude him. Paradoxically, the original arrangement may have prevented political capture by the leaders, while the new one facilitates it.

Regular meetings and reporting may limit the power of elites to capture organizations by creating frequent monitoring opportunities, but it only seems to work in combination with other institutional variables. In FA-3, meetings are only once a year, and according to interviews the forester's activities are rarely up for discussion. Rather, a prepared annual work plan is presented each year and people simply vote for or against it, giving little time for careful analysis or

modification. Moreover, there is no monitoring to see if the activities that the plans stipulate are actually carried out, since the oversight council (in charge of monitoring) is the forester's uncle.

FA-2 and FA-4 also have yearly meetings, but neither have had substantial problems with financial mismanagement. An unexpected finding is that FA-1, the association with the most frequent meetings (i.e. most opportunities for monitoring and accountability), is also the one with the most problems of capture. In this case, monitoring and accountability seem to be overwhelmed by lack of rule enforcement and sanctions, which were recurring problems. In FA-2 the hiring of an accountant eight years ago was meant to straighten up the organization, both politically and economically, including preventing resource capture. He submits a very detailed income report every year, and this appears to have the expected effect of limiting elite capture in its economic form. The current president in FA-4 has also submitted very detailed financial reports.

However, in all four associations the effect of financial reports and accounting is limited by the inability of members to carefully analyze these reports; members are not provided in writing in advance of the meetings, there are no ways to corroborate many of the expenses detailed, and community leaders often have limited formal education. Moreover, as with other peasant organizations (e.g. Lutz-Bachere, 2002), proposals are presented by the leadership and submitted to the membership for approval and there is a tendency to approve them because of a combination of trust, deference to those who have accepted the responsibilities of these positions, and lack of full information about all the elements of the proposals (e.g. no previous evaluation). Thus, leaders have a lot of leeway in making decisions.

A third relevant institution is leadership terms. In FA-3, the lack of term limits and the lack of regular election processes have led to the perpetuation of a clique, which reduces performance

incentives and forces members to openly ask for a change in leadership rather than having a secret-ballot election.[99] Yet while the term limits in FA-1, FA-2 and FA-4 can potentially constrain the ability of any one leader to dominate, there does not seem to be any correlation between this institution and the level or recurrence of elite capture in those three associations.

Partly this may have to do with lack of enforcement of rules and sanctions. In FA-1, the leaders consistently overstayed their terms. The lack of punishment of leaders accused of corruption or mismanagement, and the violation of other internal rules (prohibition of external individuals to become members, requirement of payment of dues), were recurrent problems. This is reflective of the power of the rule-breakers, but non-enforcement also generates incentives for others to replicate their behavior. FA-2 and FA-4 had a similar problem of lack of rule enforcement regarding participation and accountability, though it was not as drastic as in FA-1. For example, the bylaws of FA-2 require three annual meetings, but during my year of fieldwork they only had one. FA-4 also had fewer assemblies than required (one in 2010) and had problems collecting member dues despite numerous public verbal commitments by non-paying members to comply. In all four associations there were also complaints by community leaders about the lack of information and of communication (particularly visits to communities) from association leaders, which hindered transparency and accountability. All four FAs also broke their rules against their participation in partisan political activities.

Institutional origins are also related to the process of capture. The bottom-up organizations (FA-1 and FA-2), which originated with the strong support of the CNC-PRI, have maintained strong ties to these organizations. The top-down FAs (FA-3 and FA-4) have remained more politically autonomous as organizations –though never completely– and have been controlled

[99] Many preference expressions are not secret in FAs –it is common to express opinions during assemblies and to have open voting on matters such as whether to approve the leaders' annual report, to invest in a certain project or to apply for a program. However, elections are almost always by secret ballot.

internally by the foresters since their creation. Origins can also influence these organizations by providing an 'institutional repertoire' for future collective action. The case of FA-2 is illustrative: previous struggles against elite capture by a forester provided the necessary knowledge to deal with a new forester who attempted to do the same.

Another issue is that accountability from above (i.e. government monitoring of FAs) is reduced only to use of government funds for specific programs, and it hardly ever has involved an audit –only FA-3 was once audited by the Treasury and, while the organization was fined for some 'irregularities', the sanction does not seem to have had lasting effects. The government is complacent with getting a report and receipts detailing expenses, which are not hard to forge in Mexico. Moreover, while CONAFOR and the state's natural resources agency are often invited to the FAs' meetings, they do not interfere in internal decision-making issues. And when leaders have mismanaged funds from a government program or project, as the president of the state-level association, there have been no consequences.

Finally, norms are an essential part of the puzzle. In particular, the analysis accentuates the importance of the magnitude of the capture and the benefit distribution –when elite capture is too large, or when benefits only reach a few acting in cliques, then the issue becomes more salient. For instance, in FA-1 millions of pesos were captured by the leadership from projects from which members never benefitted. This created strong resentment, conflicts, and lack of trust. In stark contrast, in the other three associations the resource capture has been smaller and there have been recurrent benefits, so they have enjoyed much more stability. In the same vein, it is possible that since leaders do not receive any salary for their services (except for reimbursement of expenses), skimming off resources is a 'culturally accepted' phenomenon which partly serves to incentivize people to participate in leadership.

4.5.2.2. Power relations

While institutions account for some of the observed variation, they cannot account for all of it. The cases analyzed underscore that unequal power relations among the actors involved are also at the root of elite capture and persistence. Power allows certain actors to employ strategies through which they can prevent loss of authority, recentralize it, or capture resources, which recall the "strategies of domination" discussed by Poteete and Ribot (2011). Moreover, institutions and power interact in multiple ways. First, while institutions can mitigate power imbalances, they can also maintain them –such as with the FA-3 share-based voting rule and unlimited leadership terms. Second, institutions can be skirted by powerful actors, especially when there is weak monitoring and enforcement.

The case of FA-3 is illuminating. Why, despite their constant complaints about the rising costs of the forestry services in their organization and inconformity with their president, have member communities done nothing to change things? An informant replied: "Because no one wants to grab the bull by the horns" (interview, 10-03-2010).[100] The image evokes fear (the forester as a bull) and a sense of impotency, very similar to the "feeling of powerlessness" described by Gaventa (1980; see also Luthans et al., 1998). It also suggests that there is no leader (no 'bull rider') to come forward and unite the opposition or at least to make the forester accountable. Several informants described the forester as having centralized control and not being accountable to anyone else. An ex-member of the governing board of the largest community stated: "everything is controlled by him, no one intervenes, only *his* governing board" (interview, 06-11-2010). He further explained that the forester has "a lot of influence" and "manages the *comisariados* in his way". As an example, he mentioned that when

[100] Another interviewee similarly claimed that the problem was that "no one wants to put the bell on the cat" (interview, 09-26-2010).

communities tried to re-organize an *ejido* union in the 1990s to help them in timber commercialization and price bargaining, the forester actively and successfully opposed this. The image of fear and control was similarly evoked by another interviewee who described the forester as having his communities "*mafiados*" (in a mafia-style system).

The forester and the president are both wealthy men who live in large houses in the capital city. The forester's political connections (close friend with the current governor, cousin of the current municipal president of FA-3's region, etc.), together with his prestige, serve as a strong dissuasive for anyone wishing to confront him. In addition, the control of information that he and the FA's leadership hold allow them to misinform and use threats to maintain power asymmetries. The forester and FA leaders told communities that if they left they would lose government monetary supports because the government wanted communities to be organized. A community that exited FA-3 noted how the forester initially did not want to give them their forest extraction permit. Their positions and control over information also facilitated propaganda about the FA's benefits. 'We are the best', was the message constantly conveyed. This self-congratulatory discourse maintained the 'hype' about the association among the members and reinforced the prestige of the leadership's ability to channel resources. The forester's control over the organization, and the perception about him as the only person able to channel resources to the members, are so strong that when he resigned as forestry service director to take over the new position, the organization agreed that when he finished his 4 years in the government, he would be hired back.

Internal power relations in FA-3 are also maintained through economic exchanges including small loans given to community leaders on a personal basis. This not only creates a binding financial dependence, but also a sort of political servitude in which community members

are afraid to speak up for fear of losing future access to more funds, often needed for medical emergencies or family festivities (on the relation between loans and power, see Wilshusen, 2009). According to some, this technique is especially used with the *comisariados* to maintain their support, and could explain why community leaders who oppose the costs of the forestry service and their annual raises change positions once they become *comsisariados*. The forester's modifications to planned forest management interventions (increasing the marked-up timber volume) in exchange for political support or money are another example of these strategies.

An additional aspect of power relations within FA-3 is the presence in it of a single community –the region's wealthiest, best-organized and most-developed–[101] whose prestige and power influence other members in their voting. As one of the community's leaders said: "In the meetings when the community [representatives] raises its hand to speak everyone looks [pay attention to] and supports us." Because the community's leadership is allied to the forester, who is a member of that community and has a large family network there, these relationships serve to maintain the status quo. The family relations in the governing board further strengthen this dynamic.

Similar observations emerge from the other associations. One common aspect is the positional power and the control over resources and information this power affords. As noted by Flores and Rello (2002: 37; emphasis added), the traditional leader in Mexico has relied on clientelism– "offering, promising, giving and managing in exchange of political fidelity…[serving as] an intermediary between the peasant world and the urban world, *and in this he has cemented his power*." Foresters and peasant leaders can access resources directly

[101] This is the only FSC-certified community in the region and the only one with a sawmill. Another relevant factor is that the community has become the regional hub for a band of drug traffickers, with which some think that the leadership has become affiliated. This creates a fear effect which, although not discussed in interviews, is an obvious factor at play.

through the associations. Yet in forestry aspects, it is foresters who can apply to these funds on behalf of their communities and FAs, and this is often done without the most basic consultation. In FA-4, the first elected leader could not recall what programs the FA applied to during his tenure (from 2004-2007), because the forester had made those decisions. This is enhanced by the technical nature of the programs and their applications (and consequently by differences in education), and differences in financial resources that allow some actors to live near the government agencies (i.e. the city) or to at least be able to frequently travel to those locations. Foresters and peasant leaders also gain access to meetings where they can influence policies and obtain key information.

However, in these meetings it is often the foresters who speak on behalf of FAs, further entrenching their interests. A clear example of both processes was foresters' reactions to the original rules set out by CONAFOR for the PROFAS program funds, which stated that the associations' foresters could not have any other jobs. Foresters strongly opposed this because all of them would have been disqualified (only one ARS forester does not have a private forestry service office). After ignoring this rule for several years with the complicity of CONAFOR, they lobbied hard to have it changed until they succeeded. In the first meeting I attended during my fieldwork, a gathering of the state-level association, the foresters complained about the lack of funding for reforestation in different areas of the state in that year's CONAFOR programs. I found it curious that it was the foresters, and not the association leaders (who were also present), who spoke at the meeting. A few days later, a top-level government official noted that this was because the foresters, and not the associations, were the ones that directly benefitted from reforestation programs, because they could sell the plants they produced to CONAFOR for the

communities' reforestation activities and charge communities a 20-25% fee over the project's total funds.

The prestige of leading an organization, and the political and economic advantages this provides, was also evident in the other cases. As in FA-3, the members in the other three FAs closely associated resource channeling with their leaders' actions. Leading an organization also makes leaders more coveted by parties and other external actors, since it facilitates mobilization of member communities for political and economic purposes. This, in turn, gives these 'leaders' bargaining power to extract benefits from political parties interested in those votes. In all four FAs, foresters and leaders in several FAs used their positions to mobilize members to attend PRI events or to campaign for political positions themselves, often remunerated with programs, projects or political positions. The case of FA-1 was the clearest example.

Control over information and the associated misinformation and threats about the loss of government funds if members left their associations was another common strategy employed by leaders and foresters to maintain their authority, as well as by CONAFOR and state government officials. Fear towards powerful *caciques* –sometimes enhanced by threats or by situations of dependency– were also evident in FA-2 and FA-1, but not in FA-4. In FA-1, fear of a previous president, one of the region's most powerful men, was mentioned by some as a reason for why he was able to overstay his term and why he was not punished for his corruption. This is also an example of how power has allowed elites to skirt rules or change them. The description of the communities under the region's main forester as 'captive' was starkly similar to the 'mafia' description in FA-3.

In FA-2, in the recent internal elections, the municipal councilmember --closely allied to the exiting president-- threatened some community leaders saying he would not support the

association if the opposing group won. Meanwhile, the timber entrepreneur in this region uses multiple strategies such as purchase of membership rights and provision of high-interest loans to community members. According to one interviewee, he operates "like in the times of the *haciendas* when the *comisariados* would be bought and the weakest shot at." (interview, 10-27-2010)

The FA-1 elections also highlighted the role of clientelism –support for the forester in return for well-paid positions in the municipality. The final commonality observed is the circularity of social capital –as theorized by Bourdieu (1977, in Wilshusen, 2009). A repeated sequence is positions that facilitated connections, which in turn gave access to information and resources, which in turn opened spaces for new positions.

Power relations, however, were not all alike in the four associations, and this difference can also be tied to different outcomes. An important contrast concerns the wealth of the presidents. In FA-1 and FA-2, the presidents were not as wealthy as those in FA-3 and FA-4. This seemed to limit their ability to connect upward with the highest echelons of power. A second contrast regards the stability or dominance of elites. In FA-1 they have shown high instability with strong competition between two groups, and this may be magnifying the process of capture. Meanwhile, in FA-3 the diametrically opposite situation occurs (one group dominating for over 15 years) and elite capture is also very high but more hidden from public view.

Finally, given the observed current and past struggles to resist and overturn elite capture, we must conclude that in addition to power over, power *to* –the power to act collectively to change a given situation– is also very present, with perhaps the exception of FA-3 in which constraints on collective action to change the leadership are very strong.

4.5.2.3 Historical and political-economic conditions

While power relations and institutions can help explain the differences in the forms and intensities of capture that take place, they are insufficient to explain its persistence in all four associations. I argue that this can be understood by looking at the historical and current political economy of Durango. Both power relations and institutions operate in broader political-economic structures and historical processes that affect them (Hayward, 2006; Shapiro, 2006; Swartz, 2007; Bourdieu, 1977, 1985, in Wilshusen, 2009). National political or legal changes, such as decentralization policies, as well as large-scale economic changes, can alter power relations in society by creating political openings for less powerful groups, or by reinforcing elites' power (Tarrow, 1998; Wollenberg et al., 2006).

Yet path dependencies hamper institutional change. The experience of ex-communist countries in Eastern Europe is very relevant because, as with Mexico, they endured a very long period of authoritarian and centralized government. Luthans et al. (1998) conclude that the prevalence of manipulative, corrupt and abusive (i.e. "dark") leaders in ex-communist countries is a product of this history. The class-based social system controlled by one party restricted leadership to a selected party elite –the *nomenklatura*. These leaders, in turn, destroyed or co-opted any opponents, creating a scarcity of good leaders. Meanwhile, communism –by imposing decisions from the top and giving people very little room to develop their own abilities– created a sense of "learned helplessness" in which people felt they did not have the ability to influence outcomes and had low levels of experience and confidence, and consequently became passive and unmotivated to act collectively. After the fall of communism, the high level of uncertainty and crisis in the transition period fostered "role ambiguity and uncertainty regarding responsibilities", making leaders "vulnerable to changes and power struggles", while also

creating a social desire for 'strong' (i.e. authoritarian) leaders who could solve the social and economic crisis and fill the power vacuum.

In Durango, the best example of path dependence is the role of foresters; in three of the four FAs, the foresters that have been involved in the process of elite capture are the same individuals who were at the head of the government-run forest management units (UAFs) in the 1980s. Thus, the power of foresters and their behavior is partly a result of the history from which they emerge. Until the 1980s, foresters in Durango were accountable upwardly, first to timber corporations (under the private concession system in the 1950s) and later to the government (under the government-run concession system and the forest administration units). They tended to strongly favor the timber interests rather than the interests of conservation or community benefits (Klooster, 2003; Merino, 2004). Moreover, they played a decisive role in facilitating the expansion and regularization of timber extraction in the state. In these positions, foresters became wealthy and strengthened their political connections (the mere appointment to these positions already reflected good political connections). They also developed strong links to communities. While in some cases foresters were crucial in organizing and supporting communities in their struggles for more autonomy (see Chapter 2), in many they simply implemented federal prerogatives on the ground. The privatization of forestry services in 1992 generated new opportunities for personal enrichment. It also generated two perverse incentives regarding community forestry: to submit applications for projects that generate income for them, regardless of whether communities or associations need them or not (e.g. reforestation); and to subvert communities' and FAs' development.

The use of FAs by peasant leaders to escalate into political positions and capture resources, and the symbiotic relationship between these associations and the PRI, need to be understood in

the context of Mexico's history of clientelism, corporatism and *caciquismo*. Peasant organizations served as 'intermediaries' to peasants and peasant communities, and negotiations between them and the government were all-important. The PRI benefitted from the associations' mobilization of political support and votes through leaders that "usually control large quantities of peasants" (interview with FA-4 leader, 01-31-2012). The FAs were envisioned as vehicles of political representation and as intermediaries to channel resources, and FA leaders as natural choices for elected or appointed positions within the party-state apparatus. This created a perverse incentive to use the organizations as political ladders as well as strong attachments between peasant leaders and the PRI-CNC.[102] Resource capture was often allowed as part of the 'tools of the trade'. As explained by the FA-4 leader: "[the benefits are] always distorted because this or that leader is supported and obtains huge benefits, and while in some cases these benefits reach the majority of the population, in others the benefit is only for a few who act in cliques (*camarillas*)." (interview, 01-31-2012) This is especially a threat in contexts where members of an organization have developed a history of delegation and lack of political participation (an 'apathy' of sorts), as is the case in many FAs in Mexico (Chapela, 1998; Lutz-Bachere, 2006).

Mexico's democratic openings have had some effects on this system –loss of political power by the CNC and FAs, and an increased awareness by peasants about their rights. As one government official explained, "people have understood that they can obtain funds because it is their right and not because they are from a party." (interview, 01-28-2010) Yet, at least in Durango, historical relations have shown tremendous resilience. For instance, despite the attempts by the federal government to use PROFAS to build political support for the PAN party, most associations in Durango were captured by the same people that had been controlling

[102] The vast majority of community and FA leaders interviewed expressed a strong conviction that the PRI is the party best representing their interest.

associations before –foresters and PRI operatives– "taking the money and continuing to support the PRI", as one interviewee put it. The case has similarities to the "nomenklatura effect" observed in Bulgaria's water user associations by Theesfeld (2009). This shows the capacity of existing clientelist networks to adapt to changing contexts, as found in other countries transitioning away from heavily centralized and authoritarian governments. It also underscores the importance of pre-existing networks but also of historical patterns of governance, as explained by Bourdieu (1977, in Wilshusen, 2009). However, a key difference with those previous case studies is that the comparative analysis of four FAs has shown that these historical patterns can be overcome or at least modified through institutional design, grassroots mobilization, and more equitable power distributions. In FA-2 and FA-3, for instance, the existence of forestry services gave the association financial autonomy and consequently more leeway in implementing the PROFAS program.

These historical patterns are intermixed with other current political-economic factors that reinforce or mitigate elite capture. In Durango, the continued strength of the PRI and the lack of a well-developed civil society and NGO sector further reinforce peasants' and FAs' dependence on foresters and the government. In other words, the linkages are 'reduced' rather than diverse. The bureaucratic complexity and technical nature of government programs also contribute to elite capture by making it nearly impossible for peasants to directly engage in the process of applying for programs and creating a dependency on external foresters and well-educated leaders for their support. Finally, the PROFAS policy has altered power dynamics. In FA-1, it enhanced the intra-group conflicts and created an opportunity for the small-and-poor communities to gain an increased majority (with new member influx). It also created opportunities for already-

established or emerging elites to consolidate their power by capturing more resources, as happened with the foresters in all four associations and the timber entrepreneur in FA-2.

4.6. Conclusions: Mitigating elite capture

This study has demonstrated that elite capture is pervasive in cross-scale linkages even in a successful community forestry experiment such as that of Mexico, underscoring the need for more scholarship on this subject. The findings about power and political economy have important implications for the theory of institutions, particularly for trying to explain why formal and informal rules do not coincide (see Clement, 2010; Theesfeld, 2009). They also contribute to furthering our understanding of the relations between institutions and equality in the commons, a seldom-studied subject (Andersson and Agrawal, 2011).

The question remaining is what are the most effective strategies to mitigate and resist elite capture. From the government's standpoint, limiting foresters' intermediary role through new rules that generate direct and true community involvement in community forestry programs seems necessary. Training of community leaders in forestry services is also very promising, as is increasing funding for programs aimed at strengthening community institutions, organizations, participatory processes, and economic enterprises. In fact, this research, as well as previous work, has suggested that one of the strategies elites –particularly foresters– have used to maintain their control over community forestry and the associated linkages is downplaying the social dimension in the resource-channeling process. Breaking this "vicious cycle", as Barsimantov (2010) calls it, will also require the active intervention of other civil society actors, such as NGOs and progressive academics. Oaxaca provides several examples of the positive effects of these strategies.

Yet these strategies are mostly externally-driven. Grassroots actions will also be required. One is improved design of community and inter-community institutions, such as the hiring of external accountants, active monitoring by members, and the clear delineation of authority roles. The second is internal mobilization for democracy, a process which, although evident from previous historical periods in the FAs studied, is currently lacking.

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CHAPTER 5

APPLYING THE DIAGNOSTIC FRAMEWORK TO POLYCENTRIC GOVERNANCE: THE CASE OF INTER-COMMUNITY FOREST ASSOCIATIONS IN DURANGO, MEXICO

ABSTRACT

This chapter analyses how a combination of internal and external factors influence the operation of four second-level organizations (inter-community forest associations, FAs) in Durango, Mexico. Applying Elinor Ostrom's diagnostic framework, I focus on how the history of collective action, leadership, autonomy, and political-economic context combine to influence associations' effectiveness in providing services to their member communities.

5.1. Introduction

Previous research (see Chapters 2 and 3) has demonstrated the positive impacts of connections across levels or scales (labeled cross-scale/multi-level/networked governance) for common-pool resource (CPR) management. However, we need to recognize that their existence is not automatically a positive thing, much less a panacea. The CPR scholarship has highlighted the multitude of variables influencing the initiation and sustainment of collective action and CPR management. So far, cross-scale has been analyzed as a factor for success itself. What characteristics of cross-scale systems make them more or less successful remains unanswered. Moreover, it remains unclear which of the factors identified as crucial (i.e. Ostrom's design principles) in local-level CPR governance apply to higher levels of governance.

In this chapter, I analyze the factors that influence effectiveness of four inter-community forestry associations (FAs) – a form of cross-scale governance– by looking at five key internal variables: origins and previous history of collective action, leadership, financial and political autonomy, social capital, and internal institutions (see **Figure 1.2,** Chapter 1). In addition, I discuss two confounding factors which influence FAs directly as well as the community-level outcomes that are affected by FAs: the political-economic context (i.e. the socio-political and governance system) in which FAs operate, and community-level characteristics. In the next section, I present the diagnostic framework which serves as the basis for the theoretical exploration. In Section 3, I describe the research design and context. Then I present the results (Section 4) and discussion (Section 5).

5.2. Theoretical framework: Explaining the success of polycentric common-pool resource systems

The scholarship on common-pool resources has shown that there is a wide range of factors that can influence the success of CPR governance (e.g. Agrawal, 2001; Padgee et al., 2006). Following this lead, Ostrom (2007, 2009) proposed a "diagnostic framework" which sought to navigate this complexity by organizing the large number of potentially relevant variables into five categories: *(1) Resource System (RS), (2) Resource Units (RU), (3) Governance System (GS), (4) Users (U),* and *(5) Social, Economic and Political Setting (S).* **Figure 5.1** presents this framework and the variables considered most important in my analysis (marked with an asterisk).

Figure 5.1. Variables in the Diagnostic Approach

Social, Economic and Political Setting (S)	
S1- Economic development. S2- Demographic trends. S3- Political stability. S4- Technology. S5*- Government resource policies. S6-Market incentives. S7- Media organization.	
Resource System (RS)	*Governance systems (GS)*
RS1- Sector (e.g. water, forests, pasture, fish)	GS1- Number of users
RS2- Clarity of system boundaries	GS2- Nongovernment organizations
RS3- Size of resource system	GS3- Network structure
RS4- Human-constructed facilities	GS4- Property-rights systems
RS5- Productivity of system	GS5- Operational rules
RS5a- Indicators of productivity of system	GS6- Collective-choice rules
RS6- Equilibrium properties	GS6a*- Local collective-choice autonomy
RS7- Predictability of system dynamics	GS7- Constitutional rules
RS8- Storage characteristics	GS8*- Monitoring and sanctioning process
RS9- Location	
Resource Units (RU)	*Users (U)*
RU1- Resource unit mobility	U1- Number of users
RU2- Growth or replacement rate	U2- Socioeconomic attributes of users
RU3- Interaction among resource units	U3- History of use
RU4- Economic value	U4- Location
RU5- Size	U5*- Leadership/entrepreneurship
RU6- Distinctive markings	U6*- Norms/social capital
RU7- Spatial and temporal distribution	U7- Knowledge of SES/mental models
	U8- Importante of resource
	U9- Technology used
Action Situation [Interactions (I) – Outcomes (O)]	
I1- Harvesting levels of diverse users	O1- Social performance measures (e.g. effective rules, efficient, equitable, accountable, sustainable) O2- Ecological performance measures (e.g. overharvested, resilient, diverse, sustainable) O3- Externalities to other SESs
I2- Information sharing among users	
I3- Deliberation process	
I4- Conflicts among users	
I5- Investment activities	
I6- Lobbying activities	
I7- Self-organizing activities	
I8- Networking activities	
Related Ecosystems (ECO)	
ECO1- Climate patterns- ECO2- Pollution patterns. ECO3- Flows into and out of focal SES.	

Source: Modified from Poteete et al. (2010)

**Variables considered most relevant in this study*

This approach promises to navigate the immense complexity of CPR problems without falling into the 'panacea' trap or the 'my case is unique' trap (Basurto and Ostrom, 2009). According to this framework, the key for any analysis is to carefully specify a particular context and identify variables which are most likely to be relevant for that context, and then use theory to map the causal connections between them (Basurto and Ostrom, 2009; Ostrom 2007; 2009; Poteete et al., 2010). The diagnostic approach implies that to truly understand how and why FAs succeed in providing benefits to member communities, one needs to focus on a combination of factors, rather than a single one.

Recent empirical applications of the framework have showcased the value of this approach to understand *causal combinations* of variables, rather than the magnitude of a correlation between one variable and the outcome (e.g. Basurto and Ostrom, 2009; Gutiérrez et al., 2011; Madrigal et al., 2011). Gutiérrez et al. (2011) analyzed a large database of community fisheries and found leadership as the most important factor influencing outcomes, followed by local institutions and social capital. However, they also found that the *most* successful cases combined eight different factors: size of the resource system, productivity of the system, resource unit mobility, group size (nonlinear), leadership, norms and social capital, knowledge of the social-ecological system, salience/importance of resources to actors, and collective-choice rules – especially monitoring and enforcement as well as autonomy as a precondition to craft those rules.

Leadership, social capital, and local institutions have also been identified as key combinations of variables for success by scholars analyzing peasant organizations and NGOs (e.g. Flores and Rello, 2002; Seixas and Davy, 2008). This scholarship has also identified as important external supports, including financial, technical and/or political assistance from

governmental and non-governmental organizations as well as professional services (e.g., forestry services); and capacity-building of members and leaders, especially professional training.[103] Success factors combine in different ways in each organization and each type of activity they carry out (Flores and Rello, 2002). In what follows, I summarize the theoretical and empirical relevance for the variables in this study: origins and previous history of collective action, leadership, autonomy, social capital, and internal institutions.

5.2.1. Origins and previous history of collective action

The factor which guided case selection is the historical origins of the organization – whether it was formed in a process of bottom-up (grassroots) organization and cooperation between communities,[104] or whether it was formed in a top-down process, either by the government or another external actor such as a political boss or a forester.[105] In Mexico, the top-down nature of FAs has often been cited as a source of organizations' failure (e.g. Bray and Merino, 2004; Bofill-Poch, 2005). In Chapter 2, we saw that FAs' origins influenced the types of services they provided, which coincides with recent research that shows that PROFAS organizations strongly focus their activities on promoting the new government programs and supporting communities in their applications to this program because of the high level of financial dependence (low financial autonomy) on CONAFOR (Merino et al., 2008). Meanwhile, Chapter 3 showed that the types of perceived benefits from FAs varied somewhat between the top-down and bottom-up organizations in the study. In this chapter, I am interested in exploring how FAs' origins affect their effectiveness.

[103] This training becomes increasingly important as the organizations enter into economic activities (Flores and Rello, 2002).
[104] The bottom-up motivation is similar to the "demand-driven approach" discussed by Madrigal et al. (2011).
[105] Foresters are the second most-common external actor –after the government– leading to FA formation (see Chapter 2).

Previous experiences of collective action, whether top-down or bottom-up, should also be relevant. Previous organizational experience can facilitate collective action (Ostrom, 1990; Vedeld, 2000; Madrigal et al., 2011), but previous experiences with bad leadership or with external interventions may also decrease trust and create "vicious cycles" (e.g. Barsimantov, 2010).

5.2.2. Leadership

Leadership has been long recognized as an important factor for collective action in CPR settings (Ostom, 1990; Vedeld, 2000). Together with prior organizational experience, leadership "reduces the users' costs of coming to agreement and finding effective solutions for a particular environment." (Ostrom et al., 1999: 281) In this sense, effective leadership can overcome problems of large group size and heterogeneity (Vedeld, 2000; see also Ostrom, 1990). Leaders' connections to external knowledge, resources and people are crucial (Balooni et al., 2010; Bodin and Crona, 2008), though they can also be an obstacle (e.g. Vedeld, 2000). Empirical work has found leadership to be an important characteristic in numerous cases of CPR management (e.g. Basurto and Ostrom, 2009; Dinar et al., 2005; Gutiérrez et al., 2011; Hurrelmann et al., 2006; Olsson et al., 2006; Seixas and Davy, 2008; Sinha and Suar, 2005).

Leaders can be crucial for mobilizing collective action, to 'activate' the existing social capital within a group (e.g. Hurrelmann et al., 2006). They can help counter challenges to local autonomy from external actors (e.g. Balooni et al., 2010; Basurto, 2007). Leaders are also part dispute mediators and part development agents who obtain and share information on government programs, interact with external agents visiting their communities, and build independent links to government and non-government actors (Daftary, 2010: 170). Agranoff (2006: 18) refers to

leaders of public sector networks as "champions" – a "highly visible and powerful" actor with a strong vision who "can command organizational resources, has the political and technical respect of others, serves to move the network along, and when needed…protects its interests politically when under hostile attack."

However, leadership should not be regarded as a panacea. As Rondinelli and Heffron (2009: 4) put it, "we must avoid falling into the trap of assuming that success requires successful leaders, and that therefore every success in development demonstrates the importance of leadership." Leaders that are too strong can create dependency and crowd out effective participation from others (Madrigal et al., 2011), or they can abuse power and use their positions and the information they control for their own benefit (Crona and Bodin, 2010; Theesfeld, 2009). In short, they can have a 'dark side' (see Chapter 4). There are also trade-offs between different leadership roles, for instance, between internal representation/legitimacy and networking or connections to external actors (e.g. Vedeld, 2000). In some cases networking may be more important; in others, resource channelling; and legitimacy in others. Different leadership styles and traits, such as charisma, courage, creativity, inclusiveness, far-sightendness, authoritarianism, and manipulation, also influence the impact of leaders on collective action in different ways (Rondinelli and Heffron, 2009; Sinha and Suar, 2005;). Finally, organizations often have multiple internal leaders, as well as links to outside ones, recognized in concepts of "team", "shared", and "distributed" forms of leadership commonplace in the organizational management and psychology literatures (e.g. Bolden, 2011; Pearce et al., 2010). In FAs, leadership can be shared within each governance board; between the board and professional/expert advisors, such as foresters or other external allies; between the board and the

community leaders that constitute the FA's assembly; and between community leaders and other members of their communities.

Previous research on Mexican FAs has identified leadership as an essential variable for the success or failure of FAs, communities, and other peasant organizations (Bofill Poch, 2005; Bray and Merino, 2004; G. Chapela, 1998; F. Chapela, 2008; Fox, 1990, 1992; Hernández Navarro, 1990, 1992). Several important findings emerge from this literature. First, the overall lack of (good) leadership –particularly those trained in administrative and economic issues– is a major limitation on community forestry (F. Chapela, 2008). Besides lack of formal education and administrative and economic knowledge, lack of continuity has emerged as an area of concern (F. Chapela, 2008; Lutz-Bachere, 1999). Also, leadership and politics (especially *caciquismo*, corporativism and clientelism) have been intricately intertwined in Mexico, and this has had lasting effects on leadership characteristics and behavior. On the positive side, there have been grassroots experiences across Mexico that have challenged these tendencies with a more democratic, representative, and professional leadership (see Hernández Navarro, 1992).

The crucial importance of leadership in FAs was mentioned repeatedly in interviews with different stakeholders in Mexico City and Durango during my fieldwork. Because one of the main roles of FAs in Durango is resource channeling from government agencies (see Chapter 3), effectiveness is closely related to leaders' ability to navigate the government bureaucrac – knowing how it operates, who is in charge, what kinds of programs are available, etc.– as well as having good relations with key actors from within. In this regard, previous experience in leadership positions in their communities or other organizations is a key requirement, though not a guarantee of success.

5.2.3. Financial and political autonomy

The ability of users to design their own rules has been identified as another key factor of sustained collective action in CPR settings (Ostrom, 1990). By definition, this is a relational variable because a community or organization's autonomy depends directly on the government's level of intervention in their affairs. The balance between external connections to government and non-governmental actors and autonomy is a crucial yet hard to define issue, and is intricately connected to the topic of leadership. Vedeld, (2000), for instance, found that, consistent with Mancur Olson's (1965) predictions, political elites and leaders' higher levels of wealth and connections can help increase collective action. Yet he also found that this potential was undermined when leaders' connections to external officials were too strong, underscoring the importance of autonomy.

In Mexico, the issue of autonomy has been one of the central aspects of research on peasant/rural organizations. In Chapter 2, I showed the negotiated and contested dynamic of FAs autonomy throughout the history of Mexican forest policy and politics, and the importance of grassroots collective action to initiate, expand or maintain autonomy. Here, I pay attention to these conditions in their current form –i.e. during my fieldwork– and how they affect the organizations' observed performance.

It is often assumed that autonomy has been low because rural organizations have traditionally depended on state aid and have been embedded in a long history of authoritarian governance and the practice of clientelism, corporatism and *caciquismo* (Chapela, 1998; Wilshusen and Murguía, 2003). According to Bartra (1992), external relationships potentially compromise autonomy. Understanding autonomy to mean "political indefinition" (i.e. not adhering to a specific political party), he argued that when peasant organizations are dependent on national agencies, they become

more subordinate to gain access to development funds. Gordillo (1988) and others argued that the only way for peasant organizations to become autonomous from the state was to develop economic projects that would lead to *financial* independence. From this perspective, autonomy does not mean complete independence from the state, which would imply confrontation and/or isolation; it means self-governance in the financial, commercial and technical aspects (see Hernández Navarro, 1992). However, as Bartra and Otero (2005) note, this strategy was not successful on many instances because it substituted dependence on the state with dependence on a 'free' market in which peasants could not compete. One could argue that this is precisely the case in the forest sector. Taylor (2001, and Zabin, 2003) and Wilshusen (2010) have also shown how an economic focus can generate internal tensions within an organization, particularly regarding internal democracy. As I discuss below, this is also evident in one of the FAs in this study.

In this context, what seems important is to have a clear delineation of the roles of internal and external actors, and a diverse, balanced set of funding sources, including internal sources of income from productive activities (see Wilshusen and Murguía, 2003).

5.2.4. Operational-level institutions

There is a long line of work highlighting the importance of institutions for CPR governance in general (Agrawal, 2001; 2007; Ostrom, 1990; 2007) and for forests in particular (Gibson et al., 2000; Padgee et al., 2006). Institutions facilitate collective action by reducing uncertainty among participants regarding their rights and responsibilities. Monitoring and enforcement have been found to be consistently important (Ostrom and Nagendra, 2006). Downward accountability has also been posited as a crucial factor (Agrawal and Ribot, 1999; Fox, 1992; Madrigal et al., 2011; Ribot et al., 2006).

In Mexico, clear rules about membership and decision-making which (1) give voting rights only to active members, (2) establish clear procedures for new members, (3) require full consensus for major decisions and simple majority for ordinary ones, and (4) regulate compliance, have been found to be important for success of some regional collective action endeavors (e.g. Wilshusen and Murguía, 2003). Other issues to consider are the availability of spaces for participation such as general assemblies, and the frequency and types of participation (Merino et al., 2008).

5.2.5. Norms/social capital

Pre-existing social capital –including relations of trust and cooperation but also networks and organizations–can be crucial for the formation of new inter-community networks as well as for their sustainment (Berkes and Seixas 2004; Flores and Rello, 2002; Seixas and Davy, 2008). In networked contexts, this means social capital not only in each member community (i.e. local social capital) but also at the inter-community level (i.e. regional social capital).

5.3. Methods and Data

The question posed by this research was: what factors are most important for the success of cross-scale/multi-level collective action (in this case, inter-community associations, FAs)? My hypothesis is that success requires a combination of previous histories of bottom-up collective action, strong leadership, financial and political autonomy, strong internal institutions and social capital.

The diagnostic framework served as a guide in the selection of variables and the overall methodological approach, which required paying close attention to the symptoms of the cases

and identifying the combinations of variables and causal *processes* generating them. While the main focus here is on the internal organizational characteristics of each FA, I also pay attention to the social, political and economic context as an overarching variable that influences the independent variables (i.e. origins and previous history of collective action, leadership, autonomy, social capital, internal institutions) as well as the outcomes of interest (i.e. emergence and sustainment of collective action, benefits to communities, elite capture).

Durango was selected for several reasons: it has the largest share of forest and timber production in the country (importance), and it has several external conditions conducive to success, including some of the first community forestry experiments in Mexico, a long history of local collective action, large number of FAs, substantial state funding, and 'supportive' relationship between government agencies and FAs (Merino et al., 2008).

Through a qualitative comparative case study of four FAs, I aimed to contribute to the in-depth analysis of these key factors in order to better understand the causal pathways through which they operate rather than to identify a weight or correlation value (see Gerring, 2007; Madrigal et al., 2011). Case selection was based on the origins of the organizations –whether they were originated by communities (self-organized/bottom-up) or by external actors (top-down). Two of each type –as similar as possible in terms of group size and geographic location-- were selected for analysis. All four FAs are in the same ecosystem (temperate dry pine-oak forests of Durango), though not all have the same extent of natural capital (see **Table 3.1**, Chapter 3).

Open-ended questions about the main challenges and problems, services and benefits, and the different variables of interest in each association provided most of the information. Each variable's operationalization is discussed below.

5.3.1. Effectiveness

Organizational effectiveness, which I here use interchangeably with *success*, is one of the hardest concepts to define and operationalize (Rojas, 2000). One of the challenges it presents is its multidimensional nature (Madrigal et al., 2011), especially in socio-ecological settings. Success can be defined in terms of the achievements or advances made on the organization's objectives and goals (Flores and Rello, 2002). Different proposals for measuring effectiveness in civil society organizations include "profitability" ratios, constituent satisfaction, outcome indicators, and reputational measures (e.g. Herman, 1990). Others measure it through the survival of the organization, and others as the ability to satisfy key strategic constituencies in their environment.

There are strengths and weaknesses in each of these approaches. Profitability ratios are often not appropriate because the main objective is rarely profit-making, while constituent satisfaction is difficult to appraise consistently across organizations (Rojas, 2000). Reputational measures are problematic because those most informed to make these evaluations often have vested interests in the organizations being evaluated (Williams and Kindle, 1992; 386).

In this study I use three measures of success which combine constituent satisfaction and reputational measures: member perceptions about their association's resource channeling benefits (average percentage between three categories – see Chapter 3), percent of members of each FA saying benefits were high, and external observers' opinion of the success of the association.[106] I then add a fourth measure –reported trends in timber stocks– that is closer to an

[106] These evaluations exclude those of the FAs' governing boards, which have a very strong incentive to overstate benefits.

outcome indicator and, given that FAs are focused on sustainable forest management, a measure of goal achievement.

5.3.2. Independent variables

I operationalize the independent variables based on multiple dimensions, and using as a basic source of data members' evaluations. *Leadership* quality can be defined in multiple ways. One is the degree of influence and personal ability (Rojas, 2000). Another is previous training and knowledge of the issues at hand, in this case forestry (Basurto, 2007). I use perceptions of the quality of the leadership by the members (community leaders and other community members) as well as by external observers to compare the percentages of participants evaluating the leadership as good. I also compare the different qualities that emerged from respondents' own explanations about leaders' characteristics.

To measure *financial autonomy*, I use the percentage of communities rating the financial situation of their organizations as a weakness. I also use financial data from the organizations themselves to compare the levels and sufficiency of human, physical and economic capital (see Merino et al., 2008), including the percentage of funds coming from internal sources. For *political autonomy*, I looked at each association's ability to craft their own rules, members' sense of ownership, and percent of members perceiving political use of their organization as a weakness. *Social capital*, in turn, is defined with three inter-related components: participation in assemblies, members' financial contributions to the organization, and members' perception about the cohesion or unity of their organizations (% mentioning as strength or weakness). Finally, *institutions* are measured based on member perceptions as well as observed presence/absence

and specific characteristics of key institutions for participation (assemblies), decision-making (voting), monitoring (financial audits/reports), and enforcement (sanctions).

5.4. Results: Diagnostics in four Mexican FAs

5.4.1. Effectiveness

Table 5.1 summarizes the results of effectiveness.[107] Based on the measure of the average percent of communities in each association perceiving some benefits in the "resource channeling" category (Column 2 from left, see Chapter 3), there is little distinction between FA-1, FA-2 and FA-3. These three associations appear to be enjoying some level of success, with more than half of their members perceiving some benefits in this category.[108] FA-4 appears to be much less successful in this regard.

Table 5.1. Indicators of effectiveness in four FAs

FA*	***RC ***** ***(Avg., %)***	***Perceived level of overall benefits (%)***				***External evaluations of success (%)***			***Perceived change in timber stock***		
		None	***Low***	***Med***	***High***	***Low***	***Med***	***High***	**-**	***None***	**+**
FA-1	52.4%	14%*	14%	57%	14%	33%	50%	17%	43%	29%	29%
FA-2	55.6%	0%*	8%	42%	42%	25%	0%	75%	40%	40%	20%
FA-3	56.7%	0%	0%	30%	70%	0%	25%	75%	0%	18%	78%
FA-4	28.1%	15%	23%	31%	31%	0%	100%	0%	100%	0%	0%

** Percent higher (35% in FA-1, 8% in FA-2) if we consider only the Comisariado responses*
*** Sample size different for each category of success. See Appendix 2*
**** RC = Resource channeling*

[107] **Appendix 2** presents the detailed evaluations of benefits per community.
[108] Some percentages were higher and others lower in the other categories (see Chapter 3).

According to other three success measures (columns 3-5), FA-1 and FA-4 were not very successful and the least successful amongst the four. Both associations had the lowest percentage of communities perceiving a high level of benefits (14% and 31% respectively) and the highest percentage perceiving none or low (28% and 38%). In four of five cases (80%) where the elected community leaders (*comisariados*) perceived no benefits in FA-1, the failure was partially attributed to an unequal distribution of benefits –a perception that these were mostly going to large-and-wealthy communities. FA-1 and FA-4 also had the lowest ratings from external evaluators: in the former, only 17% rated success as high, while in the latter 0% did so. Most rated their success as moderate (50% in FA-1 and 100% in FA-4), but FA-1 had an important proportion (33%) rating its success as low. Finally, both associations showed the highest percentages of communities reporting decreases in timber volume (forest stock).

FA-2 could be categorized as moderately successful. Substantial percentages of its member communities reported a high (5/12, 42%) or moderate (42%) level of benefits. Only one community leadership viewed the benefits as low (8%) and another as nonexistent (8%).[109] Three out of four (75%) external observers rated success as high (although 25% rated it as low), and 60% of respondents reported no negative trends in timber stocks.

Meanwhile, FA-3 showed very high levels of success and is clearly considered the most successful of the four associations in this study. Seventy percent (70%) of its members ranked the level of benefits as high, and seventy-five percent (75%) of external observers ranked success as high, while no community or external observers ranked benefits or success as low. FA-3 has also been very successful in one of its core objectives –managing the region's forests. All seven responding communities (100%) reported a stable or increasing forest stock, with 78% reporting

[109] In this second community, other interviewees did perceive benefits In another community, the leaders thought the benefits were high but the general assembly thought they were very low to nonexistent.

increasing timber volumes. The organization's forester has won national and state awards for his practices. Meanwhile, 82% of eleven member communities mentioned forestry services and/or forest management as one of the association's strengths. The association's infrastructure is also clearly the most developed in the state: it has the largest number of forest watchtowers (5), the most extensive radio communications system, and the largest tree nurseries of any association in the state. As a comparison, FA-3 produces about 2 million pine seedlings a year in three (3) nurseries, while FA-2 produces about 120,000 in one.

The leaders also argued that the organization was the most successful in the state in terms of resource channeling, noting that member communities as a group consistently receive the highest amount of funds in Durango.[110] A CONAFOR official expressed it this way:

> "They are the most advanced, definitively. They are self-sustaining [financially] and have a plan for where they want to go, where they want to grow. They are the ones with the most infrastructure, they are the ones who have a technician [forester], there the forester is part of the organization, they are not separate….maybe it is an example to replicate in other regions, maybe not in all, but in some it would be interesting to replicate that model." (interview, 08-02-2010)

Another official from the state's environmental ministry argued that FA-3 was "the most consolidated in the country" and characterized its level of organization as "optimal". He noted the quality of its forestry services (particularly in reforestation, forest fires, diversification) and again proposed it as a model to be followed (interview, 08-20-2010).

[110] This was corroborated in some cases like the environmental compensation program. However, in terms of direct funds to FAs through PROFAS, FA-3 did not receive the highest amount.

What accounts for FA-1 and FA-4's low levels of success, the moderate level of success of FA-2 and the high level of FA-3? In what follows, I attempt to explain these differences by looking at five factors: origins and history of collective action, leadership, financial and political autonomy, internal institutions and governance, and social capital.

5.4.2. Origins and previous history of collective action

There is no discernible relationship between the origins of the associations and their level of success. Each category (top-down and bottom-up) had a failure and a success. In terms of previous experience with collective action, all four FAs had it (see Chapter 2), and without further parsing out what *type* and amount, it is hard to determine how this variable has affected success. It is telling, however, that the organization with the most previous experience, FA-1, is also the least successful. Nevertheless, previous experience, as we shall see, is very important in conditioning trust and reciprocity.

5.4.3. Leadership

In all four case studies leadership was mentioned as a decisive factor in the creation and success of the organizations, as well as in their collapse or decay. A community leader expressed that having good leadership was the main recurrent challenge in their association, stating bluntly: "without leadership there is nothing." (10-01-2012). Lack of continuity of leadership was consistently mentioned as a problem for community and FA leaders in general, as well as in the four FAs. Peasant leaders often have little formal training or education, so they have to learn through practical experience. However, the three years they are usually allowed to occupy their

positions is not enough time to acquire the necessary knowledge and skills.[111] Corruption and mismanagement and the use of leadership positions for political gain were also identified as major leadership problems (see Chapter 4).

Table 5.2 presents the evaluation of leadership in each of the four associations, and **Table 5.3** presents the main positive and negative attributes mentioned about each of the leaders at the time of my fieldwork. **Appendix 3** presents the evaluations of leadership per community and external observer. According to the theoretical framework and the outcomes of the success measures presented above, we would expect leadership to be strongest in FA-3 followed by FA-2, and weakest in FA-4 and FA-1. This hypothesis is partially supported by the data.

Table 5.2. Evaluation of current leadership quality in four FAs in Durango

Association	**Ratings, Communities**			**Ratings, External**		
	Good	***Average***	***Poor***	***Good***	***Average***	***Poor***
FA-1 (n= 14 c, 11 e.o.)[112]	43%[113]	14%	36%	0%	55%	45%
FA-2 (n = 9 c, 5 e.o.)	78%[114]	0%	0%	100%	0%	0%
FA-3 (n = 11 c, 9e.o.)	64%[115]	0%	27%	78%	11%	11%
FA-4 (n = 9 c, 6 e.o.)	78%	11%	0%	67%	33%	0%

[111] As an external observer with much experience in the private timber business stated: "A governing board comes and works well for three or six years, and then the other party attacks them because they are enriching themselves. Politics is very engrained into communities…Then another governing board comes in and dismantles everything that the previous one and the one previous to that one did." (interview, 01-31-2010)
[112] c = communities, e.o. = external observers. Communities include elected community leaders as well as other community members. External observers include federal and state government officials and foresters.
[113] One community (7%) had opposing views; some considered leadership is good while others thought it is poor.
[114] 22% had opposing views.
[115] 9% had opposing views.

Table 5.3. Evaluation of current leadership attributes in four FAs in Durango

Attributes	FA-1	FA-2	FA-3	FA-4
Positive				
Education	X	X		X
Knowledge		X	X	X
Honesty	X	X		
Effort/persistence	X	X		X
Resource channeling		X	X	X
Communication		X		
Connections/networks		X	X	
Legitimacy/represent.		X		
Presence		X		X
Internal agreements		X	X	
Strictness			X	
Technical support		X	X	
Shared		X	X	
Negative				
Domineering			X	X
Unequal benefits	X	X		
Political use	X	X	X	X
Corruption			X	

FA-1 has the worst leadership ratings of all four organizations, with negative ratings by 36% of communities and 45% of external observers. It also has the smallest proportion of 'positive' leadership ratings (43% of communities and no external observers). Poor leadership was also mentioned by 29% of communities as one of the organization's main weaknesses. Despite what some saw as his commitment and "effort" (mentioned by 29% of communities), the FA's president had the least number of positive attributes of any of the four FA leaders. He was characterized by many as indecisive, timid, lacking communicative skills, and without the ability to mobilize the membership. Moreover, the process by which he reached his position was marred by the interventions from the region's most powerful forester (see Chapter 4). This undermined the president's legitimacy from the beginning. Another weak spot was his inability to channel

funds and develop projects (*gestión*), a characteristic mentioned by four communities (36%) and three external advisors (27%). This inability was due to a lack of resources, but also to a lack of skills and of persistence. The leadership was also fragmented within the governing board; two of them even considered leaving their positions. Towards the end of my fieldwork, the President left for a position in the municipal government.

On the positive sitde, the president has had a long relationship with most of the region's communities and possesses substantial administrative and political experience. He worked for 25 years as the accountant of many of the region's communities as well as the FA. He previously served as president of his community's governing board and as the FA's Treasurer. From there he moved onto politics, sequentially holding positions as president of the municipal branch of the PRI, and municipal comptroller (the second in command in local government).

Another major problem relates to previous leadership experiences which reflect recurrent use of leadership positions for personal political and economic gain, ensuing internal conflicts, and stark inconsistencies and lack of continuity. Almost all interviewees, when talking about the history of the organization, mentioned at least one of these three factors as the catalysts for the organization's weakening and its current state. These previous experiences substantially reduced trust in the organization, in turn reducing member participation and financial contributions.

FA-2, FA-3, and FA-4, in contrast, appeared to have much stronger leaderships, with over 60% of communities and external observers rating them as good. In the case of FA-4, the leadership does not have the expected 'weak' value; together with FA-2, it has the highest leadership ratings among communities (78% good). The external observer ratings offer a slightly different picture: the rating is still high (67% good) but it is below FA-2 and FA-3. The FA-4 leader's education and previous experience, knowledge of the region, and his effort and

persistence were mentioned as salient characteristics. The involvement of the region's main forester, the organization's founder, was mentioned by some as crucial for the successful development of the organization and several key projects (e.g. fire watchtowers, community-level fire combat brigades, road repair equipment –see chapter 4). The lack of involvement from the other members of the governing board was noted as a limitation. An interviewee remarked: "The President has much knowledge about the forest and peasant issues, but *he is alone*, the people around him don't know." (interview, 12-08-2010; emphasis added) Some interviewees also expressed reservations about the fact that the president did not live in the region's main city. A few others criticized his political involvement and his domineering attitude, which seemed to crowd out support from some actors.

As with FA-1, FA-4 also faced the challenge of previous leadership experiences. The first two leaders were rather weak, and lacked both knowledge and experience. There was consensus that they responded mostly to the founding forester. Lack of presence (mentioned by 69% of communities) and lack of information (61.5%) were the two main weaknesses identified for the organization. The previous president (2007-2010) only held two meetings in his three-year tenure and many communities reported that he had never visited them. This created a problem because people began to be disillusioned and payment of membership dues started to drop. As a community leader stated: "[providing this information] is something that is very necessary because community members ask why they are in the association, who authorized it, and what is the benefit." (14-December-2010) Information deficiencies also had to do with the failure of *community* leaders to inform their community assemblies properly, as mentioned in several interviews in FA-1 and FA-4.

FA-3 did not have the strongest leadership but its ratings were still very high (64% of communities and 78% of external observers). The president has been in his position since 1995 and although he did not have any previous leadership experience when he started, he has obtained substantial amounts over time, holding elected municipal positions twice and having numerous other positions in government policy-making bodies, NGOs and a state-level FA. He was described by some as hard-working and attentive (27% of communities). Yet there were complaints in some communities about his lack of presence in the region (36% of communities). The true leadership in FA-3, however, is in the hands of the association's forestry services director. This could be seen as a form of shared leadership, as stated by the forester: "all of this [success] is the job of the Union [membership and governing board] and also of the Unidad [forestry services], because we do it like that, in a very coordinated way." (interview, 06-26-2010) Four communities (36%) mentioned the role of the forester as an important component of leadership. Most considered the forester's participation a blessing to the organization and a key component of its success, though some strongly disagreed abot this (see Chapter 4). The ability of the forester (and to lesser extent the FA president) to channel resources was identified as a positive characteristic by 45% of communities interviewed (5/11) and 44% of external observers (4/9). The accompanying technical staff and leaders' connections to external actors were mentioned as additional positive aspects. One final aspect mentioned as an important characteristic of FA-3, which was unique to this organization, was the 'continuity' or 'stability' of the leadership. According to the second-forester in charge, this was one of two components of success for the association (the other was the willingness to make financial contributions). Yet the permanence of the president and the forester for so long was also a source of tension within the Union, even in the community which most supports these leaders.

The leadership of FA-2 was ranked the highest of all four organizations among both communities (78% good, 0% poor), and external observers (100% good). It also had the highest number of positive attributes mentioned. The most salient characteristics were the president's professional education (he was a forester by training) and knowledge (mentioned by 44% of communities), his effort and engagement with the organization (67% of communities), his honesty and trustworthy character (33%) and his ability to channel funds and develop projects (33%). The ability to channel resources, as in FA-3, was tied to the strong connections between the leadership and external governmental and non-governmental actors. Shared leadership was mentioned by a majority of communities (67%) as another central component of the leadership and the success of FA-2. Within the governing board, the president had a group with previous leadership experience and professional education. Two external actors also supported the FA's efforts in advancing key regional projects such as paving of the region's main road and bringing electricity to the region: the CEO of the region's main timber corporation, and a municipal councilmember/alderman who had been a member of the FA governing board. A community leader explained: "The Union…channels resources from different agencies, and as such we go through others such as [the councilmember] and [the timber CEO], who is heard everywhere, and they support us." (participant observation, FA-2 assembly, 30-Sep-2011). Another community leader noted their natural complementarity: "[the timber entrepreneur] has the money and the Union the human capital." (interview, 10-29-2010)

5.4.4. Autonomy

Table 5.4 presents the results concerning political and financial autonomy. **Appendix 4** presents the strengths and weaknesses by community. The findings again lend partial support to the expectations.

Table 5.4. Autonomy in four FAs

FA	***Political autonomy***			***Financial autonomy***	
	Craft own rules	*Sense of ownership*	*% stating as weakness*	*% of funds from members*	*% stating as weakness*
FA-1	0.5	Low	36%	30%	50%
FA-2	1	High	25%	66%-74%	42%
FA-3	1	Medium	18%	84%	0%
FA-4	0.5	Medium	15%	33%	23%

5.4.4.1. Political autonomy

All four associations had some degree of ability to craft their own institutions. However, this autonomy was lowest in FA-1 and FA-4, due to the forced change into the ARS model by CONAFOR. In the case of FA-1, the association had to integrate new members, including private landowners (which had historically been prohibited in the FA) and communities from areas that had never been considered part of the Union's reach. Those new members did not have to contribute any entry fee, contrary to the initial membership. The association also had to adopt a set of bylaws based on a model provided by CONAFOR, and later had to modify them at the request of the agency. As a result, FA-1 is now prevented from directly engaging in any revenue-raising activities (and distributing revenues to members), because of its non-profit status. Consequently, the association could not enter into a partnership with a timber corporation to

establish a much-needed wood chipper in the region and could not receive financing from the government's rural bank (FIRA). As suggested by community representatives, this problem could be solved by creating a parallel for-profit organization for these purposes, but this would also imply added transaction costs (e.g. drafting bylaws, becoming notarized, making yearly reports).

Within these constraints, FA-1 still designs internal rules through assembly decisions, called 'agreements', and they have also planned to draft more detailed written rules increasing regulation of member attendance to meetings and quota payments. Still, sense of ownership is low. There is a widespread perception that participation in the new ARS is mandatory in order to receive funds from CONAFOR, that "not participating can produce sanctions" (interview, 05-24-2010), and that the Association is 'part of the government, part of CONAFOR'. "Since the ARS's [new CONAFOR FAs] are part of the federal government, one cannot raise one's voice too much" (ibid). These changes have created some lasting tensions within the association and have reduced its legitimacy, and consequently the communities' commitment. The addition of new communities also created difficulties for the leadership, which now had to interact with local authorities from three different municipalities.[116]

FA-4 and FA-3 also entered the PROFAS program, but neither had to change their bylaws. In FA-4, the forester, with the participation of a few communities and the advice of SEMARNAT and CONAFOR, had drafted the bylaws before the program started. Moreover, the association retains the same ability to make internal rules through the assembly. Still, as with FA-1, there was a widespread perception among FA-4 communities that being in the association was mandatory to obtain CONAFOR funds. The strong control the forester has exerted was also

[116] The same happened in FA-4; in contrast, FA-2 and FA-3 only had to deal with one municipality.

an issue, though it seems to be changing mostly due to the current association president, who has strong feelings about the need for the association to become autonomous from the forester.

FA-3 did not have to adopt any changes due to its pre-existing legal status as a civil society (non-profit) association and its inclusion of private landowners as members. However, avoiding CONAFOR's impositions also had to do with strong leadership and financial autonomy (see below), which made the association less dependent on CONAFOR funds. Despite this autonomy, some complained about the forester's excessive control and the lack of decision-making autonomy by the elected leadership and the assembly (see Chapter 5). An ex-leader argued that representation was weak because the governing board was not assigned sufficient resources (controlled by the forester) and that this made the forester the *de facto* representative. One community member claimed that "the truth is that the FA is [the forester] and nothing more", and that decisions were made in a "very authoritarian" fashion. Despite being an employee of the organization, the forester was the Union's legal representative and vice-president. As a consequence, there was a relatively weak sense of ownership (except in the leaders and a few communities). In contrast to FA-2, most FA-3 communities and leaders referred to it as the *Unidad,* which is the name that was used for the government-run forestry services in the 1970s. Moreover, with a few exceptions, no one made the distinction between the forestry services (*Unidad*) and the association per se (the Union), and most member communities perceived that the benefits came from the former.[117] The FA-3 leader did not even have an office in the association's building.

In FA-2, the original bylaws and changes made to them in 2002 were drafted by communities with external advice, not in response to a government requirement. Since FA-2 did

[117] When calling the office, for instance, the secretary would always greet with the name "Unidad", referring to the forestry services, despite the fact that the offices and staff are paid by the unión (i.e. FA-3).

not integrate into the PROFAS program, but rather created a parallel organization to channel those funds, it avoided the obligation to change its bylaws or membership. In contrast to the top-down FA-3, sense of ownership was very strong. Communities have a clear sense of the distinction between their organization (the Union) and the forestry services. When talking about benefits, they always refer to the Union. In terms of internal organization, the FA president was always in the office and it was clear that the director of forestry services was under his authority. In fact, as several interviewees explained, that was precisely one of the reasons for forming the Union and was also a key point of struggle in the Union's early history.

As **Table 5.3** shows, in all four FAs the political activities of the presidents and other leaders raised concerns, and provoked discontent and distrust among some members. These activities included the support of party candidates through the association, and the use of the association as a "political trampoline" for the aspirations of certain individuals.[118] In this regard, FA-1 was by far the worst, as political engagement has been at the center of internal elections historically (see Chapter 4), and received the highest percent of mentions as one of the association's main weaknesses. The *comisariado* of a community complained that "they [the FA leaders] drag us from here to there, saying that this or that person will come, they are in campaigns; politics should be left hanging outside." (interview 07-09-2010) The FA president very candidly explained that although the association has formal rules against leaders having a political position or supporting a political party, politics nevertheless "infiltrates" the organization. He said this was inevitable because members were still "social actors" and recognized that when the FA was an *ejido* union it was even more politicized.

[118] There is a fine balance between this 'politicking' and the external alliances that organizations have, which are a key to obtaining external support. Defining this balance it is beyond the scope of this paper.

In FA-4, communities' responses implied that political engagement was the lowest of all four FAs. However, the president's failed attempt to become the PRI candidate for municipal president, and his subsequent opposition to the selected candidate (who won the race), led to his isolation from the new municipal government, closing off a potential ally and source of funds. In FA-2, problems with political use of the organization surprisingly received the second-highest percentage in the sample, though still relatively low (25%). The internal elections for a new leadership in 2010 highlighted some of the problems. Still, they were of much less magnitude and salience than in FA-1 and have not led to any strong divisions or departure of members. Moreover, political connections with the municipal councilmember were noted as an organizational strength which facilitated resource channeling.

In FA-3 only 18% of communities (2/12) mentioned politics as a problem, and most perceived the leaders' political connections to be an asset. An ex-leader boasted about the organization's political strength noting how several of them had reached elected positions in the municipality, and that the state government consulted with them regarding who to appoint to different positions. Political use of the organization is still present (see Chapter 4). One of the FA leaders identified politics as the one weakness in the association because "many people act like sheep" ("*se aborrega*") with [political] parties." Yet this was a minor concern among communities and it did not seem to interfere with the union's operation.

5.4.4.2. Financial autonomy

Financial autonomy appears as key condition of success in the four cases and closely matches the expected relationships. In the two low-performing associations (FA-1 and FA-4), financial autonomy is low. In FA-1, insufficient financial resources was the second most-

mentioned organizational weakness (50% of communities). The *comisariado* of one community said that all they saw at the meetings was "red numbers" (debts) and low levels of attendance (interview 04-06-2010). The organization had started the year with approximately $100 USD total funds. This problem was also duly noted by ex-Union presidents, foresters, and the current FA leadership. When asked about what was needed to be successful, they replied that they needed resources: "with that everything can be done because the association is pure *gestoría*." (interview, 04-07-2010) The association only had two sources of funds –CONAFOR and membership dues– but was heavily dependent on the former. According to a March 2010 financial report, in 2009 CONAFOR's share of the total income represented more than two thirds (70%), with membership dues covering the remainder. According to various interviewees, the financial woes of the association are a direct result of two trends: the reduction of CONAFOR support, and the reduction in payment of membership dues (interview 03-09-2010). Direct funds from CONAFOR to the FA decreased from $500,000 to $250,000 Mexican pesos in three years. The main problem, however, is the lack of payment of membership dues and of reliable internal sources of income. Four communities bore almost half (49%) of the members' burden, but only one of these was among the region's wealthiest. The FA-1 president calculated that if everyone paid their 2010 dues and what they owe from 2008 and 2009, the association would raise $671,975 pesos.

FA-4 faced a very similar situation, with only 32% of its funds coming from membership dues (in theory, without considering non-payment), and 23% of communities noting a problem of financial insufficiency as a result of unpaid membership quotas, the third-ranked problem in the FA. A government official complained that FA-4 communities thought that the only available sources of funds for the FA were the government programs (CONAFOR) and the membership

quotas, despite presentations by CONAFOR officials about numerous other sources of funds. Lack of funds has not prevented the organization from investing in important projects in recent years, but it has limited its possibilities.

In FA-2, lack of sufficient resources was also mentioned (by 42% of communities) as the second highest weaknesses. The main concern among communities was the inadequate number of personnel in the forestry services. Another issue is the small size of the forestry service fee (half of what FA-3 charges) when compared to the operating costs of the service, leading the association to operate with net losses in some years when special investments are made (e.g. replacement of vehicles). However, in stark contrast to the case of FA-1 and FA-4, the association's forestry services has generated a sustained and substantial source of income that makes it almost completely independent (financially) from the government –in 2010 only 28% of its funds came from federal government programs, while 66% came from member contributions (membership quotas and forestry service fees). In 2011 the distribution was 7% and 74% respectively. Here and in FA-3, the forestry service fee has also helped avoid the problem of membership payments because quotas are charged bundled with the forestry services fees. Because the forestry services are required to obtain a timber extraction permit and to channel CONAFOR resources, communities have a much stronger incentive to pay their dues. This tendency was further reinforced by the fact that neither FA-2 nor FA-3 have any problems with member commitment; in fact, in FA-2, mindful of the problems of financial insufficiency, they recently approved an increase in the forestry services fee. This is not to say that the association is completely independent of government funds; government support was mentioned as key for the development and success of the FA –for instance, the support from the state and municipal governments in the paving of the region's main road and in bringing electricity, two of the

association's main achievements. Federal government support was also key for the construction of the tree nursery and the beginning of its operations to develop their forestry services, which in turn provided financial autonomy. And in 2011, the association received a $1,000,000 pesos federal grant to renovate and expand its tree nursery.

FA-3 is by far the strongest organization financially. Its physical and human capitals are vast, and the organization is highly successful at obtaining funds. No community mentioned lack of sufficient resources as a weakness of the association. As with FA-2, the organization's financial autonomy is based on its forestry services. Service fees represent approximately 84% of all of the FA's income. As already discussed, several members and external observers argued that this self-sustainment from membership quotas was one of the main reasons for the association's success. According to an ex-member of the governing board, this 'economic strength' was also tied to the 'political strength' of the organization:

> "The FA is strong economically, but also politically. That's why we've been able to reach the positions we have. But if we were not strong in [our] organization and administration, we would not have political strength. The two go hand in hand. That's why we are screwing the other FAs. We get the most [government] resources in the entire state. This is something we know but we don't say openly." (interview, 10-05-2011)

This financial health could itself be considered a measure of success (see Madrigal et al., 2011). Paradoxically, the main problem mentioned in FA-3 was the costs of the forestry services (mentioned by 55% of communities), which were the highest in Durango (and some say the country) and are increased annually. There were also criticisms about the practice of taking 20%

of the money from the government programs as a transaction fee. Many, including the FA leaders, argue these costs are necessary and proportional to the services offered.

5.4.5. Institutions and governance

Table 5.5 summarizes the results on this variable. Regarding meetings and participation, the findings appear to be opposite to the expected relations: the most participative association, FA-1, is the least successful, while the least democratic, FA-3, is the most successful. FA-1 has monthly meetings, which is the norm at the community-level as well.[119] In contrast, the other three associations have one meeting per year. FA-4 is supposed to have 3 yearly meetings but it only has had one or less meetings per year for the past four years. The complaints about lack of information in the organization (its second-ranked weakness) –which, as discussed below, affects social capital– have much to do with this. In FA-2, one fourth of members complained about too few meetings and the limits this imposed on information-sharing. FA-3 also has one meeting per year, in compliance with the minimum required in their bylaws, but members did not complain about this, perhaps because it has been a longstanding norm or because they do not feel ownership of the organization. There were some complaints, however, about the limited space of participation in the meetings. The first president of the FA argued that "they only meet to raise the price [of the forestry services]" (interview, 06-11-2010). He explained that one of the founding principles of the Union was that all the members had to approve the forester's activities, yet in practice these activities were never up for discussion. Rather, a prepared annual work plan was presented each year and people simply voted for it or against it, without opportunities for modification.

[119] According to the agrarian law, Mexican *ejidos* need to have monthly meetings. Most follow this rule, though others have adopted internal institutions to have less-frequent meetings. Still, the fact that the institution is widely adopted at the community level implies it enjoys much legitimacy.

Table 5.5. Institutions and governance in four FAs

FA	*Meetings*	*Participation*	*Voting rights*	*Transparency*	*Enforcement*
FA-1	1/month	Open	Equal	Moderate	Very low
FA-2	1/year*	Open	Equal	Moderate	Moderate
FA-3	1/year	Limited	Unequal**	Moderate	High
FA-4	1/year*	Open	Equal	Moderate	Low

* In violation of the bylaws

** Based on the quota each member pays, in turn determined by timber volume

FA-3 also has two institutions concerning participation which separate them from the other three FAs. First, it includes a timber corporation among its members, a highly unusual arrangement. While this has some negative implications (see Chapter 4), it is also a way to share leadership with the timber entrepreneur, a very influential stakeholder in the state. Second, FA-3 has a 'proportional' shareholder system, similar to those of private corporations. The region's largest community and the timber corporation control over 50% of the votes. This system could be behind the association's stability, but it also has very negative implications for democratic governance.

Transparency and accountability showed only partial consistency with the theoretical expectations. All four associations had regularized reports about finances and activities, yet FA-2 and FA-3 had more professional and independent financial reports generated by certified accountants. In FA-2, members openly challenged leaders' reports during meetings. The main limitation was that members did not receive copies of the accountant's report, so there was no opportunity to closely analyze it. In FA-4, members complained that during the 4 years of the previous president there was no information provided on how the money from government programs was being spent. In FA-3, there were three separate and quite detailed reports: by the

forestry services director, the union's president, and the accountant. Members received copies of the reports during the meeting. Yet the Oversight Council has failed to present an annual report analyzing the "veracity, sufficiency and reasonableness" of these reports, as required by the bylaws. Transparency is also limited by the fact that the secretary and the oversight council president are uncles of the FA president and forester, respectively. Furthermore, there was a constant unease with and lack of clarity about how the forestry service and road committee fees were being used, and how planned activities were being carried out.[120]

Enforcement of rules coincides strongly with expected outcomes. The problem was most severe in FA-1 and FA-4, particularly concerning non-payment of membership dues. As the FA-1 forester stated when asked about what had transpired in a meeting: "as always, making agreements they can't carry out". (interview, 01-25-2011) This free riding and the lack of enforcement led some of the most active members to resent the others and in some cases to eventually stop paying their dues. In FA-4, the situation was strikingly similar. In a meeting in 2010, some members complained that although all members had agreed to pay, in the past some had not fulfilled those agreements. Then, when a member asked what they would do if this time members did not pay, the president responded: "Well, what will we do, throw them out of the association? For what purpose? What will we do, go with a judicial order?" (participant observation, 9-Oct-2010) This response reflects the impotency felt by the forester, and the paradox these associations face in enforcing their rules –sometimes their only option is ejecting members, which would probably aggravate their financial woes. The implications for financial stability were clear: "we cannot get through with [the contributions of] only the ones which pay 100%." An additional problem in FA-1 has been the absence of sanctions for corruption and

[120] For instance, severla member communities complained about having made financial contributions for a project to connect them to the electricity grid which was never done.

mismanagement, which have fueled the recurrence of these practices as well as internal divisions and elite capture (see Chapter 4).

5.4.6. Social capital

Table 5.6 shows the results concerning social capital, which strongly match the theoretically-derived expectations. In fact, this variable surfaces as another key condition for success.

Table 5.6. Social capital in the four associations

Association	***Unity/Cohesion***		***Financial commitment***		***Participation***	
	Strength	*Weakness*	*Strength*	*Weakness*	*Strength*	*Weakness*
FA-1	14%	60%	0%	40%	0%	27%
FA-2	58%	33%	0%	0%	0%	25%
FA-3	55%	0%	0%**	0%	0%	0%
FA-4	20%	0%*	0%	46%	0%	8%

* Forester, president and one community mentioned the exit of almost half of the members in 2007 as a result of the formation of a parallel FA by another forester.

** This was mentioned by the FA leadership and external observers as a strength and key factor of success.

FA-1 had very low levels of social capital and the lowest among the four FAs, having the worst ratings of all four FAs in unity and participation, and the second-worst in financial commitment. The organization has had strong and recurrent internal conflicts, with some members leaving the organization at two different times (they eventually re-joined). Lack of internal cohesion was identified as the organization's main problem. A community leader, for instance, said that currently "each [community] scratches himself with his own nails" (interview,

07-09-2010) and another said that "each pulls to his own side" (interview, 04-27-2010). As discussed in Chapter 4, conflicts in FA-1 became stronger in the recent internal elections, which 'politicized' internal governance. Some large-and-wealthy communities also perceived that they could obtain on their own many of the benefits provided by the association, pointing to the relation between social capital and group heterogeneity. The municipality where communities are located was also an issue. Most of the communities come from one municipality which historically was the center of the region's struggles. However, a few come from two municipalities which have not historically been part of the network. These are all associated to the 'small-and-poor' group, and many of them became members after the PROFAS-induced changes.

Partly as result of these conflicts, FA-1 has seen its membership dues and participation in assemblies dwindle. At a March 2010 assembly, FA leaders estimated that only about 1/3 of the membership was current with their dues (participant observation, 03-03-2010). This in turn has affected the organization's ability to invest in regional projects, as well as the leaders' resource channeling activities. A community leader expressed that the problem was lack of responsibility: "[the problem] isn't that there is not [money], it is that we don't want to [pay]." (participant observation, FA-1 monthly meeting, 3-March-2010) Another community leader said that "in the communities we don't want to enter into anything [any project], we just want *repartos* [distribution of economic dividends]." (FA-1 monthly meeting, participant observation 7-April-2010)[121]

[121] The problem, which seems to have grown over the years, is not completely new: a 2006 study of the region found a very similar situation (Hernández Díaz, 2006: 26).

Lack of member participation was also a recurrent issue. Only one of the six assemblies I attended had the required quorum of total members.[122] All of those meetings were held regardless of quorum. On average, total member participation was 39% during the period observed. The association's forester estimated that approximately twelve communities never or rarely came to meetings. In contrast, the participation of small private landowners was never higher than 39% and averaged 21% (7 out of 33 such landowners) in the same period. The communities and private landowners that rarely participated were those integrated forcefully into the association after the PROFAS program, highlighting the problems of social capital created by this program.

FA-4, despite not having any strong internal conflicts or corruption issues, has also faced substantial and recurrent problems of member commitment (participation and financial contributions). Almost half its members (46%) mentioned the financial commitment problem, the highest proportion in the sample. In October of 2010, 72% of the total amount from membership dues remained unpaid; morose members commited publicy to paying but most did not. Several interviewees noted the disparities of this problem, with some communities consistently contributing while others did not. According to an ex-member of the FA governing board, this problem has existed from the beginning. However, others argued that it has worsened in the last few years, which they blame on the lack of information and lack of FA leadership presence. As a community leader stated: "This governing board does not motivate me to contribute… I'd rather steal the money myself than have them steal it." (interview, 12-15-2010)

This problem also affected investments in projects. For instance, a community was offered FA-4's road improvement machinery but they did not want to invest the required $200 pesos

[122] In half of those meetings, there was a majority of the member communities. Average community participation in the six meetings was 53% (21 out of 40 communities).

(approx. $18 USD) per person to cover the costs of gasoline and operator. Instead, they decided to wait for the municipality to fix the road, despite their own heavy criticism of the municipality's actions in this regard. The majority of members in that community agreed that the current FA president was doing a good job, but that the problem was the community's unwillingness to directly cover costs. Similarly, a recent capacity-building course organized by the FA-4 president with CONAFOR funding had very low attendance levels and another had to be cancelled for lack of sufficient registration. The president was so disheartened that he stated he would not organize other activities for the association.

Lack of member contributions is also strongly related to the problem of trust and reciprocity, which in turn is intimately tied to histories of governance peppered with cases of mismanagement or failure of projects at the community and inter-community levels, and of politicking by leaders and external actors. Yet the problem of member contributions also has to do heterogeneities between the small-and-poor communities and the large-and-wealthy ones (especially in FA-1); and communities' lack of financial solvency, spurred by economic downturns and by internal divisions. When asked why they were not willing to invest in road improvements, the FA-4 community explained that they didn't trust those initiatives because for a long time they had paid a road maintenance fee to a regional "road committee" which never fixed their road; and when they did, they used poor-quality material that did not last. However, they also said that internal divisions prevented the community from reaching an agreement – some wanted a part of the road to be fixed, while others wanted another. Furthermore, their lack of savings from profits of forestry or other activities (mining in this case) implies that they have little ability to invest in regional projects.

In FA-1, the governing board similarly blamed the lack of trust on financial mismanagement from the previous administration, and a failure from the community leaders to properly inform their community members about the programs. The forester of one of the large-and-wealthy communities in the region said that the community "remembers this well, and so when they ask the community to contribute there is a lot of mistrust." (interview 06-22-2010) Communities' unwillingness to contribute is also related to historical patterns of community governance. As a forester with many years of experience in the region explained, for a long time the *comisariados* accustomed their communities to very large utilities from their timber enterprises and no savings for investments;[123] the *comisariado* giving the largest utilities was considered the best (interview 08-04-2010).

As predicted by theory, social capital was highest in the two most successful associations, FA-2 and FA-3. Neither have had significant internal disputes or traumatic experiences with mismanagement of funds or project failures. Both had the highest percentages of communities identifying unity as a strength (55% in FA-3 and 58% in FA-2). There was a recognition that being organized creates social capital which facilitates collective action, resources, and projects. As a community leader in FA-2 expressed: "[being] organized it's is a big advantage, because that way things get done. If we were not in the FA we wouldn't, each community would be on its own, but with the FA we do it together and the president leads." (interview, 08-10-2010) FA-2 did face some challenges, but they never were as strong as in FA-1. There were some tensions related to political use of the organization. Heterogeneity was also an issue; here it was not of size and wealth, but of the main economic activity (forestry vs. agricultural). Member contributions were not mentioned as strength, but neither as an important weakness (except in

[123] In stark contrast, in successful communities like San Juan Nuevo in Michoacan the profits are all saved and reinvested back into the community enterprises, basic services, etc. See Bofill Poch (2005)

one interview with the FA forester). In 2010, only two members were delayed in payments; one of them owed money since 2006 but by 2011 the debt had been almost fully paid. Moreover, in contrast to FA-4, when a community leader asked if the debt would be repaid, the president responded with much more determination: "We have to recover it, we have no choice." (participant observation, FA-2 meeting, 09-02-2010) The ability of FA-2 and FA-3 to avoid the problem of membership payments is not only due to strong commitment –as discussed above, it is also facilitated by charging membership quotas as part of the forestry services. In contrast, in FA-4 the ex-president complained that part of the problem was that the communities' forester was in charge of collecting the association's membership dues, butg he only cared about the service fees he charged to communities.

In FA-3, almost everyone emphasized the members' willingness to contribute financially as one of the organization's strengths and a key element of its success. Lack of member contributions was never mentioned as a problem. Moreover, every year members agree to raise the quota for forestry services and membership by $1 peso per m3, in stark contrast to the other three associations.[124] The association was also the only one which went *beyond* the minimum investment that was required for certain programs. The FA's forestry services director explained: "…the owners of the Union, the members of the Union, from its formation to this date, they are willing to contribute… That is to say, the norm is to…propose. 'Help me do this [project], *don't do it for me*. Let's do the road, let's do the electrification, let's plant trees, let's produce them." (interview, 06-26-2012; emphasis added) FA-3, he explained, is the only one where communities proposed to contribute 10% of the costs of all project applications, even those that don't formally require any financial contributions by the applicant. In other words, the community asks for the

[124] This is not entirely a 'voluntary' act. It is also embedded in power relations and institutions that facilitate the *imposition* of this raise by the forester in alliance with the association's leaders (see chapter 5), but it is nevertheless a fact that members are more willing to cooperate.

government's contribution, but "*they never ask for everything*…." (ibid). This motivates the government to approve those projects. He gave as example that year's environmental compensation projects, where FA-3 received the highest amount of funding of any region in Durango, and was the only FA to have all its project applications approved. This "solidarity in participation", as an external observer called it, is also reflected in the coordination between members, especially regarding combat of forest fires. FA-3 has also been remarkably steady and cohesive, with no significant internal conflicts and with only one member community exiting the organization in its 20 years of existence.

5.4.7. Confounding factors: Context

As shown in Chap. 2, federal forest and agrarian policies have played an important role in the emergence and evolution of FAs. These policies have also influenced their success both directly and indirectly. Directly, in recent years both FA-1 and FA-4 had to face many challenges created by the PROFAS program; in the first it spurred strong internal conflicts, and in the second to the exit of half its members and a consequent reduction in the financial capacity of the organization.

Indirectly, until a few years ago, government programs required little or no investment from communities, which created a culture of dependency. Coupled with the incentives faced by *comisariados* to spread as much wealth as possible, this created a 'culture of *reparto*' in which communities invested few or no resources. In public meetings I attended, CONAFOR officials constantly 'reminded' communities that things 'were not like before', since now government programs required communities to contribute part of the costs. Meanwhile, communities' *ability* to contribute to the associations has been affected by the recent economic crisis which has

significantly affected the forestry sector and undermined community finances, which in turn has diminished communities' ability to pay their membership dues and to invest in large projects. Timber prices have been reduced or have remained constant over time, while operational costs have increased substantially. The current timber market is, in lay terms, a 'buyers market'. As a forester expressed in a community meeting: "we are past the glory days when we would meet in the Union every year to increase the timber prices based on the increase in the gasoline price." (interview, 06-22-2012) Now there is a 'race to the bottom', where communities lower their timber prices in order to find a buyer quicker; things like price lists and joint commercialization, the *raison d'être* of associations like FA-1, have become somewhat impossible tasks.

At the same time, participants' oral histories converged on the idea that in recent decades FAs have increasingly lost political power, particularly their ability to influence decision-making and resource channeling. As analyzed by others (e.g. Hamilton, 2011), the peasant sector steadily lost power as the PRI turned more conservative and became increasingly closer to the business sector, a process only magnified by the victories of the conservative PAN in federal elections. At the same time, the ability of the PRI governments to channel funds to peasants –and consequently the ability of peasant organizations and FAs to channel resources– steadily diminished after the 1980s' economic crisis. The result was clearly stated by a longtime CNC operative and now state official working on rural issues:

> "It's not like before when the Unions said 'we want x number of sawmills, x number of kiln driers, x number of trucks', and they obtained the credit, they went to Mexico [City] and interviewed with the Secretary of whatever agency they wished. Now the Unions are managers [*gestores*], but they don't go beyond that." (interview, 11-30-2011)

The federal government's top-down policy scheme also limits FA's ability to promote regional development. This scheme was described by the top CONAFOR official in the following way: "The government says 'I have handcarts, do you want them?'. The community says, 'But I need *asadores*', and the government replies, 'well I only have handcarts, do you want them or not?'" (interview, 01-22-2010) This process was also observed in the case of FAs. Each year, CONAFOR establishes the programs available to which FAs can apply, many of which do not match the priorities in each region. In contrast, at the state level the new secretary this year simply asked each FA what their most urgent need was; some asked for a pickup truck, others for a fire watchtower or for equipment for their fire combat brigades.

Finally, as discussed in Chapter 4, the history of strong economic and political intervention in peasant organizations by the "state-party" apparatus in Mexico is strongly associated with the observed problems of elite capture, the problems of political and financial autonomy, and 'dark leadership' behavior, as evidenced by the problems of politicization in the associations. Yet these contextual challenges did not doom FAs to failure. While they influenced outcomes and processes, they did not determine them: although FAs with internal governance problems have been made weaker, the cases of FA-2 and FA-3 show that strong organizations can overcome these contextual challenges.

5.5. Discussion and Conclusion

Table 5.7 summarizes the main findings, based on my own interpretation of the results from each table. These confirm most of the hypotheses about the causes of success in FAs. Leadership (except in FA-4), financial autonomy, and social capital had the expected values.

Political autonomy and institutions showed a less conclusive relationship, except for monitoring and enforcement. And origins and previous experience did not have the expected effect.

Table 5.7. Summary of results

FA	*Origin*	*Previous exp.*	*Leadership*	*Political Autonom.*	*Financial Autonom.*	*Social capit.*	*M&E Institutns*	*Success*
FA-1	BU	Yes	Weak	Weak	Weak	Weak	Weak	Low
FA-2	BU	Yes	Strong	Moderate	Moderate	Strong	Strong	Moderate
FA-3	TD	Yes	Strong	Moderate	Strong	Strong	Strong	High
FA-4	TD	Yes	Strong	Moderate	Weak	Weak	Moderate	Low

There were some surprising findings. Regarding the history of collective action, a counterintuitive finding is that the organization with the most collective action experience, FA-1, is currently the least successful. However, it is telling that all in four associations member communities had previous histories of working together before forming them; these previous histories were not always bottom-up –they also involved top-down efforts-- but the presence of this variable suggests it is a precondition for at least the *sustainment* of collective action.

Another surprising finding is that the reduced political autonomy in all four cases (by association to one political party) is not necessarily negative for success. It may even be an asset in Durango because of the political context (see Chapter 4). What is clear, however, is that political machinations generate strong internal conflicts when they interfere overtly and through subversion of exiting institutions, as happened in FA-1. Thus, the variable needs to be analyzed

in context –in some places it will be more relevant than others. Another related and puzzling finding is the apparent lack of relationship between the problems of elite capture and the associations' success. FA-1 is the least successful and the one with the strongest problems of capture, but FA-3 also has substantial problems of capture and yet is the most successful, while FA-4 does not have many problems with elite capture yet its success is also low.

Confirming previous work, financial autonomy (including financial sufficiency), social capital and leadership emerge as crucial conditions for success. The two most successful organizations were the ones with the most financial stability, made possible by having their own forestry services. And the organization with the weakest leadership was also the least successful, while the two most successful had strong leaders. Effort, experience and knowledge, and good relations to external actors were identified as key positive leadership attributes. In FA-2, for instance, the strong leadership could help explain why despite not having the most financial and human resources (especially compared to FA-3), this association still comes out as successful. IIt is an example of how "resourcefulness" –the ability of leaders to do more with less– can help overcome scarcity (Ganz, 2000). FA-4 leader could be seen as an outlier; despite his positive evaluations, his domineering attitude, political machinations and lack of shared leadership seemed to overcome the positive attributes.

Multiple and shared leadership emerge as another decisive component of leadership in these multi-level/cross-scale governance arrangements. Four types of actors appear as leaders sharing authority and entrepreneurship with FA presidents: foresters, elected government officials (sometimes ex-members of the organization), timber entrepreneurs, and community leaders. These are the "champions" that help advance the cause of the FAs, and which mobilize collective action at the regional level. The two most successful FAs (FA-2 and FA-3) have

foresters integrated into their governance structure. Moreover, FA-3 has a very large and capable technical staff.[125] In FA-4, the forester was crucial for the development of the organization and its most identifiable achievements (fire watchtowers, road improvement infrastructure). Both FA-3 and FA-2 also had timber entrepreneurs who supported them with their capital and their connections. Multiple and shared leadership also takes place between FAs and their member communities. As stated by a community leader in FA-4: "the will of the *comisariado* counts a lot, because if the *comisariado* doesn't do it then the people in the assembly stay happy [they are indifferent]." The community leaders, however, cannot convince community members on their own, because as many explained, 'no one is a prophet in his own land'; in other words, the *presence* of FA leaders in conjunction with community leaders' activism are necessary to generate the collective action at the local level that sustains the FAs.

One final finding of much relevance to our understanding of the success of cross-scale CPR governance concerns the interactions between variables. Leadership, autonomy and social capital are intricately connected. Political use by leaders diminishes the organizations' autonomy, which in turn generates tensions within the organizations, reducing social capital and eventually leading to reduced member participation and financial contributions, which affect financial autonomy. These connections are nicely summed up by this statement from a community leader explaining the political meddling and the ensuing internal conflict within his association: "if there is no representation [legitimacy] there is no contribution [payment of dues, cooperation]." (interview, 10-12-2011)

The history of collective action and social capital are also connected: community trust in leaders and between members was highly influenced by experiences with past leaders. Social capital, in turn, can affect political autonomy. In FA-1, internal divisions facilitated

[125] On the importance of staff for networks, see Agranoff (2006).

CONAFOR's intromission, similar to the case discussed by Balooni et al. (2010). In FA-2 and FA-3, in contrast, the organizations' strong initial position allowed them to better negotiate the terms of their engagement with the agency, leading to much more adaptive solutions: the creation of a parallel organization in FA-2, and, in the case of FA-3, the incorporation into PROFAS *without* changing their bylaws or adding new members. Consistent with previous work (e.g. Toor and Ogunlana, 2009), financial sufficiency and leadership performance are closely connected in the four cases.

Finally, success itself (and perceptions about it) interacts with many of the independent variables. Most importantly, it motivates member communities to contribute, leading to more financial stability, which in turn facilitates the leaders' work. In FA-1 and FA-4, several community leaders questioned why they should invest in the association if they saw no benefits. Success, in turn, is filtered by subjective interpretations that are highly dependent on information being shared, on considerations such as the equity of benefits, and on strategic calculations by some actors seeking to legitimize or delegitimize leaders.

In conclusion, this chapter has shown the importance of a set of *causal combinations* of variables to understand success in polycentric CPR systems. It highlighted the importance of leadership, social capital, autonomy, and institutions, as well as the interactions between them and with the context in which they operate. Policy-makers should pay attention to these interactions when designing policies. Helping FAs to develop income-generating activities and diversify their funds so as to strengthen their financial autonomy should be a priority. Ultimately, however, members will have to be convinced through action (benefits) as well as words (information and negotiation) and, in those cases where it has been destroyed, trust and reciprocity will have to be rebuilt through good financial management and leadership.

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CHAPTER 6

CONCLUSIONS: TOWARDS SUSTAINABLE AND DEMOCRATIC CROSS-SCALE GOVERNANCE

6.1. Introduction

The main goal of this dissertation was to provide a better understanding of cross-scale/multi-level/networked/polycentric governance by analyzing the constitution and evolution, internal governance, and impacts of FAs in Durango, Mexico. This goal was pursued with four key questions, and four related hypotheses:

- Q1: What factors lead to the formation of FAs?
  - *H1: FAs emerge as a combined result of grassroots initiatives in response to both macro and micro-level pressures: need to solve collective problems; previous collective experience, leadership, external support, and openings in political-economic conditions.*
- Q2: How do these networks contribute to community forestry?
  - *H2: FAs provide three types of benefits to members– political empowerment, socioeconomic development, and improvements in forest conditions.*
- Q3: How do top-down FAs differ from bottom-up/grassroots ones in their services and benefits?
  - *H3: Bottom-up and top-down FAs will have significant differences in their services and benefits, and in their capture by elites.*
    - *H3a: Bottom-up FAs will have more socio-economic and political benefits, and less elite capture*

        - *H3b: Top-down FAs will have more benefits in forest conditions, and more elite capture*

- Q4: How do these differences affect FAs' effectiveness in positively influencing community forestry?
    - *H4: The most effective FAs will be those with grassroots origins and previous collective action experience, and with stronger leadership, financial and political autonomy, institutions, and social capital.*

Each of the chapters addressed one or more of these questions/hypotheses. Chapter 2 explored the factors leading to FAs' emergence and evolution. Chapter 3 focused on the impacts that bottom-up and top-down of FAs have on socio-economic, political and ecological aspects of community forestry. Finally, Chapters 4 and 5 analyzed the relationship between internal characteristics of these cross-scale/multi-level arrangements and different outcomes. Chapters 4 focused on how internal institutions and power relations affected the process of "elite capture", while Chapter 5 auscultated how origins and previous experience, institutions, leadership, social capital and autonomy influence FAs' effectiveness. In the next section, I discuss the main findings in terms of the four hypotheses posited in the beginning then discuss (in Sect. 6.3.) the empirical themes that each of the questions ties into, and their theoretical relevance.

6.2. Back to the findings and the hypotheses

What were the main findings on each of the four questions posited, and how do they prove or disprove the related hypotheses? Overall, I argue that for all four hypotheses, we can provide a

qualified "yes" to their confirmation, but that there are important complexities in these answers which highlight partial rejections of our expectations as well as future areas of study.

6.2.1. Q1/H1: Emergence and evolution of FAs

The results showed that FAs were recurrently formed or modified in response to a combination of macro-level and micro-level forces. On the one hand, new national laws and programs and changes in other macro-level conditions such as Mexico's democratic opening and economic downturns created openings or constraints on the formation of linkages. For instance, the democratic opening in the 1980s, coupled with the support of progressive bureaucrats within the government and the economic downturn that weakened large timber corporations, facilitated the emergence of the first forestry-based social movements and eventually to the formation of production-oriented FAs. The centrality of the 'state' –the collection of government agencies, actors and institutions– was a somewhat unexpected finding, particularly when drawing on theories which emphasize the emergence of institutions and collective action as a result of a grassroots, autonomous efforts. In the case of Mexico, all cross-scale collective action efforts –bottom-up and top-down– emerged within an authoritarian context that strongly constrained their possibilities for action.

At the same time, previous histories of collective action were important conditioning factors. For instance, communities' collective experiences with the concession system and the ensuing social movements in the 1960s and 1970s paved the way for some of the first FAs. Other FAs emerged after previous failed government efforts aimed at creating regional initiatives. Yet other historical processes were important as well, highlighting the relevance of path dependence as an explanatory factor. Clientelism and corporatism in particular have shown strong resilience

to the democratic opening in Mexico, and these factors continue to influence cross-scale governance. Finally, from the micro-level, local and regional leaders were often key in forming the organizations, as well as in their demise. However, it is important to recognize that these leaders did not always operate for the benefit of the associations, but rather for their own political-economic gain and/or as corporatist agents of the central government.

6.2.2. Q2/H2: Impacts of FAs

The historical analysis in Chapter 2 highlighted that FAs have been crucial in the historical development of community forestry in Mexico. More importantly, Chapter 3 demonstrated that inter-community associations provide services that help deal with ecological, economic and political issues across scales. The most important perceived benefits were related to resource channeling activities, in which associations help communities to apply to and obtain funds from different government programs. Resource channeling in forestry had the most mentions, followed by agriculture and basic infrastructure. Investments in collective goods, forestry services and political unity where also mentioned as important (perceived) benefits. Political representation and information were the least important, though still relevant.

While the ecological impacts do not appear to be as strong as expected, they are still present. On one hand, indirectly resource channeling is a crucial part of sustainable forest management, because government programs are by far the main (and often the only) source of financing for forest management activities; without these, most communities would not carry many activcities like reforestation and soil conservation. On the other hand, two of the FAs (FA-2 and FA-3) did play a very important role in helping communities deal with forest fires, which is one of the main causes of forest degradation in Durango. Moreover, FA-2 and FA-3 helped

communities with producing good-quality and low-cost seedlings for their reforestation activities; while reforestation has been much criticized as ineffective in other parts of Mexico, it has been quite successful in Durango, with survival rates of approximately 70-75% (see Prieto Ruíz and Hernández Díaz, 2007).

Despit the evident benefits of FAs, there are several important caveats to these findings. First, the importance of the agricultural and basic infrastructure were not expected, especially if one departs from the cross-scale linkages literature, which has mostly emphasized ecological benefits. This shows that in contexts where forest communities are also agrarian communities, multi-purpose rather than exclusively forestry associations can predominate (see Taylor, 2010). Second, the test of the hypothesis partly depends on which outcome is used as a measure of benefits. If one looks at actual conditions of member communities, the evidence for benefits in socio-economic development and forest conditions was at best mixed. This was particularly the case for vertical integration, community organization, and deforestation. In short, while communities receive resources channeled by FAs, those resources do not translate directly into improved local-level outcomes. Forest fire reduction is the only measure that is associated with FAs, and only with two of the four (FA-3 and FA-4, those which have invested in fire watchtowers). Comparing with non-member communities –while done here only in a somewhat haphazard way– also shows mixed results; in this case, there is evidence that communities outside of the FAs are doing as well or better than those in the linkages. One last caveat is that, contrary to the assumption in most collective action work, benefits were unequally distributed across communities and individuals, a topic discussed in depth in Chapter 4.

6.2.3. Q3/H3: Differences between top-down and bottom-up FAs

This was perhaps the least-supported hypothesis of all four. Overall, the bottom-up/top-down categorization was not as relevant as one would expect from the literature. Nonetheless, it did have relevance in some aspects concerning benefits and the historical emergence and evolution. Chapter 2 showed that in a sample of 41 communities linked to 21 different FAs in Durango and Michoacan, there are statistically-significant differences (in correlations) in (1) the types of services provided by top-down and bottom-up FAs (bottom-up FAs are more focused on political and economic issues, while top-down FAs focus more on ecological aspects); and (2) in the historical period in which each type predominates (bottom-up FAs tend to be older).

The analysis in Chapter 3 for the four case study FAs partly confirmed Chapter 2's finding. Perceived benefits of FAs varied between bottom-up and top-down services, but only in two categories: political representation (where bottom-up FAs had a significantly higher percentage of members perceiving benefits) and investments in collective and public goods (where the opposite occurred).[126] In the other categories, there were no significant differences. Importantly, all four FAs had resource channeling in forestry as their main activity. In terms of community-level conditions, forest fires was the only outcome that had significant differences between the top-down and bottom-up FAs, with the former showing a tendency towards decreasing forest fires. In the case of forest conditions (measured through reported changes in timber stock), there was no discernible pattern, and the most successful FA was a top-down one (FA-3). An important caveat in this analysis is that outcomes such as number of forest fires, deforestation patterns, and changes in timber stock are influenced by many more external (often macro-level) factors. For instance, deforestation is affected by crop prices/demand and changes in national

[126] There were observable differences also in the "resource channeling in agriculture" category but each individual FA had quite different values and thus the difference was mostly an effect of averaging across categories.

agricultural policies and programs, among others. Forest fires are affected by changes in climate (e.g. hotter and drier years), while changes in timber stocks are strongly influence by histories of forest (mis)management (especially during the concession period) that almost always pre-date the formation of the FAs.

Finally, the results from Chapter 4 and 5 regarding the factors affecting the distribution of benefits (i.e. elite capture) and success show that the origins of the FAs actually had the inverse relation to that expected: the most successful FA (FA-3) and one of the two with the least elite capture (FA-4) were both top-down associations. This implies that given certain internal characteristics (see below), top-down systems may end up being highly successful.

Yet the distinctions between bottom-up and top-down FAs are much more blurry and problematic than the categories suggest, and ultimately may not be such a useful conceptualization in the context of Mexico. The strong and centralized (though not unitary – see Rubin, 2003) state-party that ruled Mexico for seventy years based on a combination of violence and clientelist and corporatist cooptation made autonomous organization difficult to maintain. Many bottom-up associations thus received strong state support/intervention, and/or became coopted in over time. On the other hand, top-down associations often also had grassroots community involvement together with the top-down leadership, and sometimes had previous histories of autonomous collective action. Moreover, top-down FAs also need to respond to social demands in poor rural regions in order to remain relevant for the members as well as the party.

6.2.4. Q4/H4: Factors influencing FAs' success

The dissertation (particularly Chaps. 4 and 5) also showed that FA benefits and their distribution are contingent on complex combinations of multiple factors. In other words, cross-scale/networked/polycentric governance is not a factor or condition for success in and of itself (as it is often treated), but rather specific *characteristics* of those arrangements (origins, network leadership, social capital between members of the network, autonomy, etc.) make them more or less successful. Specifically, financial autonomy –obtained through the provision of forestry services–, leadership, social capital and enforcement of rules appeared as critical conditions for the success of these linkages. These characteristics fit nicely with Ostrom's (1990) design principles, suggesting that the principles can be applied to higher-order systems. It also suggests that, as polycentricity scholars have emphasized, differ**e**nt production and provision activities have to be organized at different levels and forms depending on the characteristics. In this case, the technical nature of the forestry services may make top-down systems more effective, though this will certainly not always be the case.

Three variables contradicted the theoretical expectations represented by Hypothesis 4: the origins (bottom-up or top-down), already discussed above; previous experience; and political autonomy. Previous experience and political autonomy did not seem as relevant for success as expected. All four associations had their political autonomy somewhat compromised, which is explained by the macro-level political-economic context. Regarding previous experience, it is telling that the association with the most experience (FA-1) was the least successful. Still, the fact that it was present in all four associations implies that it is a necessary (though insufficient) condition. This is especially true for the *sustainment* of collective action over time, which was Ostrom's (1990) measure of success.

6.3. Empirical themes and theoretical implications

6.3.1. Institutional change and path dependence

The analysis of the emergence and evolution of cross-scale linkages has important implications for the study of institutional change. In recent years, there has been a resurgence of scholarship on this topic (Fréchette and Lewis, 2011; Kashwan, 2011; Mahoney and Thelen, 2010; Ostrom and Basurto, 2011).

Analysis of institutional design and change from a rational choice perspective is based on actors' internal cost-benefit calculation of alternative institutional choices (e.g. Ostrom and Basurto, 2011). The result is an explanation of the emergence of institutions as a functionalist response to a collective problem (e.g. Heikkila et al., 2011 for an application to CPRs). Yet what affects these cost-benefit calculations, and their subjective interpretations, is a key unanswered question. To understand this, one needs to pay attention to several other factors. Among those, two emerge as very important in this dissertation. One is political opportunities, which in turn are determined by power relations and institutions at micro, meso and macro levels. As Fréchette and Lewis (2011) have argued, institutional change in forestry (and, we would add, in all aspects of society) occurs due to multiple micro and macro-level factors and thus requires combining multiple theoretical approaches. In this dissertation, I combined the functionalist interpretation with focus on macro-level political economic conditions –drawing on the extensive work in social movement studies– to better understand how and why cross-scale governance arrangements formed (Chapter 2).

The other factor –closely related to the political-economic context– is path dependence. This is an issue that pervades multiple aspects of the dissertation. The clearest examples are the persistence and adaptability of clientelist relations between the PRI and FAs in Durango; of

certain *types* of leaders (foresters, PRI-affiliated peasants) and certain individuals (i.e. the same individuals being involved in the organization since their origins); and of certain practices of internal governance (FAs as political ladders, use of deception, some degree of corruption and/or mismanagement). For instance, the same foresters who administered the government-run forestry services in the 1970s and 1980s (UAFs and UCODEFOs) are still the same ones leading many of the historical and new FAs. Simply put, there is substantial evidence that a more serious consideration of the 'stickinness' of institutions and behaviors is needed when analyzing institutional problems.

Path dependence, however, is not an insurmountable force of nature. After all, much has changed in the approximately 60 years of history of FAs in Mexico. In the four FAs analyzed here, there have been important moments of institutional change that substantially modified systems that had previously appeared to be unchangeable. For instance, in FA-1, communities overturned the concession system in the 1960s, while in FA-2, communities exited a top-down FA captured by a forester and created their own FA. In both cases, grassroots mobilization was crucial to achieve the desired changes. And in all four cases, as well as in others surveyed in Chapter 2, associations have shown an impressive ability to modify certain institutions to adapt to new government policies or other political-economic changes, as with the PROFAS program. This is what Wilshusen (2009) has called a "culture of accommodation". Given the particular conditions of Durango's political-economy, the results also need to be taken with caution before generalizing to other sites in Mexico.

6.3.2. Impacts of cross-scale governance

While interest in multi-level/cross-scale/networked governance has been developing for over a decade, only recently have scholars begun to actually measure the activities and impacts

of these linkages. In doing so, scholars have taken a variety of approaches. Some have analyzed how the number and types of connections that a community has with external actors affects resource management activities and local development (e.g. Orozco-Quintero and Berkes, 2010). Others have analyzed the types of institutions that are developed in these cross-scale arrangements and whether they fit Ostrom's (1990) design principles for sustainable resource governance (e.g. Heikkila et al., 2011). Still others have looked at how different forms of connections –e.g. whether they are top-down or bottom-up– vary in their robustness to disturbances (Schoon, 2008) or in their governance and resource management outcomes (e.g. Agrawal and Chhatre, 2006; Behera, 2009; Nayak and Berkes, 2008). Finally, recent papers point to the dysfunctionalities and conflicts or "turbulences" involved in these cross-scale initiatives (Benjamin et al., 2011; Bray et al., 2012).

This dissertation has provided an empirical case of the impacts of cross-scale/networked/polycentric governance on local CPR systems, underscoring their importance currently and historically. Rather than looking at the community as the unit of analysis, as the vast majority of previous studies have done, I scaled up to look at the second-level FAs (see **Figure 1.4**, Chapter 1). In addition, this work helps better understand under what conditions the positive and negative outcomes can occur.

6.3.3. Power, institutions and unequal benefits: capture and conflict in cross-scale arrangements

The relationship between inequalities and institutions has been a relatively understudied topic in CPR research (Andersson and Agrawal, 2011), although it has been central to political ecology scholars and those in the so-called "entitlements" tradition looking at power and

conflicts in CPRs (Armitage, 2008; Crona and Bodin, 2010; Johnson, 2004; Kaswhan, 2011; Pérez-Cirera and Lovett, 2006; Raik et al., 2008; Sikor, 2006; Sikor and Lund, 2009), as well as development scholarship looking at elite capture (Platteau, 2004). Chapter 4 contributed to this discussion by showing that polycentric, cross-scale governance arrangements can be subject to constant capture and conflict in specific setting. In these processes, power plays a central role in determining who wins and who loses, or who has access or not to positions of authority and decision-making, connections, and resources. The chapter showed the diverse ways in which power operates, e.g. agenda-setting and control, institutional manipulation and avoidance, threats, information control. Furthermore, we saw a self-reinforcing process in which acquisition of these resources/positions/connections in turn facilitate access to more of them. This finding rejects simplistic understandings of social capital, and partly confirms Bourdieu's (1977, in Wilshusen, 2009) conception of the term. From this perspective, individuals' networks often serve to reinforce pre-existing power relations and lead to "elite persistence", because those with more social capital also have more access to resources and decision-making.

This study also went beyond the role of power by explaining *why* the outcomes of capture vary in their forms and degrees. Specifically, the study showed that differences in internal institutions were a key factor interacting with power to influence the outcomes. These findings contribute to the development of a richer institutional analysis that recognizes power as an explicit component of action situations, and ties into the advances made on this topic by other institutional scholars (e.g. Bardhan, 2005; Clement, 2010; García-López, 2009; Knight, 1992; Mahoney and Thelen, 2010; Moe, 2005; Theesfeld, 2009) on this topic.

6.3.4. Conditions for successful cross-scale governance

This work has also highlighted the complexity of causal processes generating success. This is reflected in several ways. First, I showed different combinations of variables that generate the same outcomes. FA-2 and FA-3 have quite different internal governance arrangements yet both have been able to be successful in providing benefits to members and promoting sustainable forestry. Their financial autonomy was a crucial link, but this did not operate in isolation –it was combined with leadership, institutions and social capital. FA-1 and FA-4 are also quite different in key ways (origins, internal governance, leadership) but their lack of social capital combined with lack of financial and political autonomy have led to failure.

There is also complexity in each individual variable, like leadership[127] and autonomy. The dissertation has advanced our understanding of leadership by contextualizing this key variable, highlighting its positive *and* negative aspects. Leaders are not only elites capturing political and economic benefits from the FAs (Chap. 4), but neither are they always enhancers of collective action (Chap. 5). They are a bit of both, and to which side they lean depends on personal histories and preferences as well as the micro (institutional) and macro (political-economic) context in which they operate. Our understanding of this variable is also enriched by showing how polycentric governance such as that in FAs requires shared leadership within and across multiple levels or scales. The community-FA link is in a way activated by community leaders who represent their communities in the association's monthly meetings. If the association's governing board has good leaders but the individuals representing their communities do not possess such leadership (e.g. they play personal interest or politics and don't report properly back to their communities), then the association will have a harder time garnering support (in terms of participation and financial contributions). Similarly, leaders within the FA (the secondary level)

[127] On this complexity, see also Kashwan (2011)

require the assistance of other leaders such as professionals or experts (e.g. foresters), and local/regional businessmen (e.g. timber CEOs) and politicians (e.g. local councilmen from the region). Yet the sharing of leadership between experts and elected leaders is not always a positive thing, and the outcomes partly depend on power relations as well as institutions and the origins of the networks.

Regarding autonomy, there is a complex duality between the necessity to build external connections and maintain internal legitimacy and representation. The proper balance between these two has not yet been studied, and this research has only begun to address this. For instance, the study suggests that leaders that are well connected politically can be successful if the connections are used to the benefit the organization rather than the individual, and if the external actors do not themselves have political or economic interests in the organization. When there is clientelism in between, i.e. when the support from external actors is given in exchange of something, this not only reduces autonomy but creates perverse incentives within the network to utilize the positions for personal gain or to foment partisan politics. This disregards the diversity of opinions among members and can generate strong internal conflicts.

The study also suggests that autonomy needs to be understood as a result of a dialectical relationship between communities and central authorities (i.e. government or 'the state'). The central government has a key role to play in autonomy, because as the ultimate guarantor of rights, it often retains some control over resources even while recognizing communities' rights over them. The objectives of the government and that of communities can differ substantially (Agrawal and Chhatre, 2006), with governments promoting large-scale development projects, conservation areas, or exclusive concessions to large companies for resource extraction (e.g. mining or timber companies). Furthermore, the government might have as its central interest the

political control or extraction of rents from communities and might employ violent force to enforce its institutions (e.g. Peluso, 1992). Clientelist and corporatist systems may also be prevalent, as have been in Mexico. This generates back and forth tussles between communities, inter-community collective action endeavors (i.e., FAs), and government authorities over the boundaries of local rights (see Chapter 2), where grassroots mobilization becomes necessary.

Thirdly, the study highlighted complexity in the interactions between different variables. Institutional origins affect autonomy and trust, especially when top-down efforts are perceived to be unfair; trust and autonomy also affect each other. Lack of autonomy can also hinder effective leadership, especially when external actors undermine grassroots leaders as pat of their strategies of political control. Leadership can enhance autonomy, as in FA-2, but also undermine it, as in FA-1. And power interacts with institutions in complex patterns that can change or become reinforced over time (Chapter 4).

Lastly, complexity surfaces when considering how we define success, because it is a multi-facedted concept. As others have noted (e.g. Ferguson, 1994; Escobar, 1995; Li, 2007), discourses of success and development are problematic because they always hide certain 'unpleasant' elements from the public's (and policy-maker's) eyes. In the four FAs analzed, inconsistencies arise when trying to define the success of each collective endeavor. For instance, while FA-3 appears to be the most successful in terms of resource management and level of collective action, it is also the least democratic and has persistent problems of elite capture.

6.3.5. The importance of context

The dissertation's findings also demonstrate how the political-economic and historical contexts in which FAs are embedded influence not only the emergence, evolution and survival of

cross-scale/polycentric arrangements (Chapter 2), but also their effectiveness in the provision of benefits, and the distribution of these benefits (Chapters 4, 5). This makes a relevant contribution to CPR studies, which have seldom considered these external factors in their analyses (Agrawal, 2007; Clement, 2010; Johnson, 2004; Sick, 2008; Taylor, 2001). At the same time, I have expanded on this work by highlighting the interactions between the context and the associations' characteristics. This recalls Gidden's (1984) idea of a dialectical relationship between structure and agency (see Wilshusen, 2003). For instance, we have seen that the context is a key variable influencing the possibilities for autonomous governance and non-partisan leadership in Durango: the PRI's dominance there has implied that FA leaders are necessarily tied to that party, and this in turn generates processes of elite capture and persistence for political purposes within the associations. Yet these results are not in an iron casing; they can be molded by other factors such as grassroots mobilization, proper institutional design, and financial autonomy.

6.3.6. Two-level collective action dilemmas

One final contribution from this study is to our understanding of collective action theory as it applies to polycentric systems. In FAs, each member is a group in itself (in this case, communities), as opposed to the typical organizations studied in CPR research, composed of individuals. In these situations there is a "double" or "two-level" collective action problem which recall the "networks of adjacent action situations" described by McGinnis (2011). Collective action first takes place at the community level, where the community members, in their general assembly, have to take decisions about being part of an FA, about paying their yearly membership dues, and about investing in association projects such as a regional sawmill, a fire tower or road repair equipment. Then there is a second collective action problem at the

association level, where the *representatives* of each community have to make decisions collectively about different matters. This link between the first and second collective action process is complicated by several factors, including the fact that representation is never perfect, and, as evidenced in the dissertation (especially Chapter 5), the local leaders that formally represent their communities in the FAs may not accurately potray their communities' needs or desires, may not adequately inform their communities about the FA, or may not have the necessary leadership skills to convince (without misleading) the communities about supporting a certain FA project. This implies that sharing of information across levels is not only a potential benefit of cross-scale/networked governance, but a *necessity* for its proper functioning. The levels are connected in more complex ways. Processes at the community level can hamper cross-scale linkages. For instance, a local corruption scandal reduces trust locally, which in turn complicates local collective action, but it also reduces trust towards higher-level organizations, further hindering the process. Economic hardships can similarly hamper communities' contributions to the network.

6.4. Limitations and Future Research

Despite these contributions, it is important to recognize the limitations of this study. The small sample size, combined with the complexity of the causal processes studied, means that some of the findings are contingent and should be taken as grounds for further exploration. This is particularly true when we recognize the importance of context. While I was able to use information from a larger-N survey database, that information was limited because it was from a different project whose main focus was not FAs. Still, it is important to keep in mind that in qualitative analysis, the number of observations is not the same as the number of cases (Brady

and Collier, 2004; George and Bennett, 2005; Gerring, 2007). In fact, for each FA I have multiple observations over time. More importantly, my interviews are from an even larger sample of communities (49). I also have observations from other associations in Durango as well as other parts of Mexico, allowing me to draw more generalizable conclusions.

Another potential limitation may be site selection. Durango may be considered an atypical case because one party (the PRI) has not relinquished power since the 1920s, even after the same party lost control of the federal level in 2000. The particularities of Durango imply that the findings need to be taken with caution when seeking to extrapolate to other areas, or to make generalizations for theory-building purposes. Although there are other Mexican states where the PRI has never lost elections (e.g. Veracruz, Coahuila, Mexico), there are still other states which show contrasting patterns to that of Durango. For instance, Oaxaca has a long history of autonomous grassroots organization.

However, the 'atypical' nature of Durango can also be considered a strength of this dissertation, and one of its main sources of contribution to theory and praxis. If one recognizes that Mexico is a very diverse country, then one must ask, what is a typical case? In reality, it is very hard to identify one. In fact, as stated in the introduction, most research on Mexican forest communities and FAs has been carried out in Oaxaca, and it is from those experiences (and a few cases in other states) that most of the theory and hypotheses about these topics have been drawn. Oaxaca can be considered as atypical as Durango, or even more so, because of the strong indigenous collective identity that is not found on many other states (particularly central and northern ones). Thus, several issues underscored in this research present contrasting findings with the research to date and analytical perspectives that have been absent from previous work, which helps provide a more grounded theory for future work: (1) even bottom-up FAs can be

strongly influenced by macro-level contextual factors, specially political ones; (2) the strong role that clientelist party politics still play in some Mexian rural areas; (3) the use of FAs for personal economic and political gains, rather than collective benefits; and (4) the role of foresters as more than simply 'experts' that support community forestry, but as leaders who can be central to regional networking and who can also have a 'dark' side.

Finally, the fact that my research design did not systematically compare non-FA and FA communities means that while I can say a lot about what FAs do, I cannot say how much of a statistical impact of FAs in the larger population of communities – i.e. the statistical difference between an FA community and a non-FA community. Ultimately, there was a tradeoff between gaining in-depth knowledge of FAs internal governance versus gaining comparative knowledge about FA and non-FA communities, and I chose the former because of my interest in understanding inter-community collective action.

Future research should take on the task of building large-N databases of cross-scale governance arrangements to look the characteristics that make them successful and to better understand the factors that drive their emergence and evolution over time. Comparison across states is a necessary next step to evaluate how different political-economic contexts affect the emergence and evolution of FAs and their success. This should include states with similar (PRI dominance) and dissimilar (other party dominance) contexts. A more systematic comparison between FA communities and non-FA communities is also needed to better understand the impacts of associations. Another issue that demands further exploration is the role of leadership in FAs, particularly: (1) the multiple, competing leaders that are inherent to multi-level/cross-scale governance; (2) the effects of different leadership styles and roles in various contexts, and (3) the emergence of leadership in a given context. Finally, the role of foresters is a crucial yet

understudied aspect that needs more attention in work on cross-scale linkages, as is the role of local timber entrepreneurs and larger timber corporations.

6.5. Policy relevance

As a final conclusion, I point to several considerations for policy-makers. First, cross-scale linkages are necessary for sustainability but to be effective they need to go beyond the purely technical or managerial aspects of natural resource management. Sustainability requires cross-scale linkages, but also requires a holistic perspective dealing not only with ecological but also with social (equity), economic (development) and political (empowerment) issues. Integrated conservation and development initiatives provide an example of policies aimed at balancing these multiple goals. Yet most of these initiatives have focused on the local level. Meanwhile, the focus so far in the vast majority of scholarship on cross-scale linkages has come from the resilience/social-ecological systems tradition, and consequently the focus has been on how these linkages can improve ecosystem management. Integrating both perspectives in policy-making to devise integrated conservation-development initiatives *across scales* seems like a fruitful strategy for the future.

Second, cross-scale linkages are important but they are not a panacea, and we need to look at their internal characteristics. Cross-scale linkages, even externally-created ones, can help local communities in multiple social, economic and ecological issues. The idea of some that large communities can go at it alone, as has been done by some Mexican forest communities, is at best not replicable beyond a few cases, and at worst simply wrong. However, we cannot assume that cross-scale linkages will make things better, as CONAFOR seems to have done when it started

the PROFAS program. Creating connections between communities without properly supporting their internal governance is doomed to failure.

Policymakers would do well to understand the internal characteristics that make these arrangements successful before jumping to any conclusions. This dissertation has identified key factors that can help policy-makers determine the needs of a cross-scale/multi-level arrangement such as an FA. Multiple initiatives should emerge from here. One that could be very effective is supporting capacity-building for leaders and other members of FAs, including administration and networking and collaborative skills; promoting new institutions that facilitate leadership transitions without creating large instabilities in the organizations; developing diverse sources of funding; strengthening local institutions for monitoring and enforcement; and facilitating increased interactions between FAs at the state and national levels where they can influence policies more directly.

Programs that contribute to the financial self-sufficiency of FAs by helping spur revenue-generating activities are also crucial. Currently, most of the CONAFOR programs for FAs have been to carry out studies (on topics decided by CONAFOR) or to develop very specific projects (again decided by CONAFOR). There is an urgent need to support other initiatives that help FAs generate their own funds. One promising alternative is the program known as Local Development Agencies (ADLs), through which associations could provide technical advisory services not only in forestry but also in agriculture, livestock and overall in regional development. Regional eco-tourism initiatives, such as those already being implemented in the Creel region of the state of Chihuahua, could also be an important source of revenue. This will not be without challenges. As several government officials stated, these kinds of initiatives,

while sorely needed for FAs, go against the economic interests of private foresters, because they would represent competition and loss of clients.

In relation to this, political and monetary support from the government and non-governmental sector will be necessary. They will also need technical support to apply to multiple project grants in different agencies at state, federal and international levels. This 'grant writing' expertise is very difficult to find, but essential. Currently, only one association provides that kind of support in Durango, and it is extremely expensive. The government should help cover these costs. Moreover, in all these programs, it will also be necessary for the government and NGOs to go beyond providing money and requesting implementation reports; maintaining a sustained engagement with FAs, as has been done in the last few years, is necessary to provide both oversight and support.

To maximize cost-effectiveness ('bang for the buck'), policymakers should begin by supporting linkages where there is previous collective action experience. All four FAs in this study had that previous experience, which suggests that their sustainment of collective action for so long is somewhat associated to this factor. The debacle of the PROFAS program in creating new organizations from scratch in regions with scant previous collective experience also underscores the importance of said experience. In other words, the objective of creating new, self-sustaining organizations is dangerously close to a contradiction in terms. This is not to say that regions where there is no previous experience should not be intervened. They should be, and some could argue that they should even be a priority. But this will require much more intensive and sustained initiatives.

It is also imperative that the different levels of government abandon the top-down and centralized model of policy-making that has predominated to date. The creation of spaces for

forest communities and FAs to participate in decision-making bodies like the sustainable rural development councils or the state forest committees is a positive step forward, but to date these bodies have had a mostly consultative role and their application is still quite limited. Furthermore, forest communities are still almost completely excluded from processes of design and implementation of federal and state programs. This needs to be modified in order for policies to be more relevant to the needs of these communities and their associations.

Regarding the role of particular actors in these networked forms of association, the crucial role of foresters as leaders, development agents and experts, but also as elites capturing resources, suggests that policy-makers need to pay more attention to these actors. In Mexico, there is a large institutional framework regulating the profession of foresters, but some of these institutions have obviously failed their stated goals. For instance, the effectiveness of the CONAFOR programs supporting community forestry is potentially undermined by foresters' control over the decisions of which projects to apply to. The rule that requires community approval before foresters apply to any program should be more strongly upheld. Stronger oversight is needed. However, this also implies that CONAFOR must give longer time periods for the application process –in 2011 they only gave one month for submitting proposals. At the same time, some institutions should be modified to remove the perverse incentives that foresters have when applying to these programs. For instance, CONAFOR should continue the practice of priority areas for reforestation projects to limit foresters' ability to continue soliciting these projects every year for their communities when they're not needed. Nonetheless, these priority areas should be designed with communities' participation to make sure key projects are not removed from priority areas by some bureaucrat in Mexico City.

Meanwhile, the relative isolation of forest communities and FAs in Durango suggests that national and international NGOs need to pay more attention to this region. The positive examples of NGO interventions in Oaxaca and other states –especially when they act democratically in cooperation with (rather than imposition over) communities and FAs– show the potential of this sector strengthening cross-scale governance in Durango. For too long, Durango has been ignored by NGOs. It is time for them to step up to the challenge.

Finally, these reform initiatives from donors, NGOs and policy-makers will require complementary bottom-up efforts including grassroots mobilization from peasants, external support from social movements and civil society organizations truly committed to grassroots development and empowerment, as well as new peasant and government leaders who leave behind the old politics of political machinations and the 'them versus us' mentality that still pervade Mexican rural governance.

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APPENDIX 1. Interview Guides

A1.1 Community Interview Guide (for individual members)

1. Community

1.a History

- Tell me about the history of the community (open-ended)
- What major events can you recall in this history?
- How has the situation in this community changed since its founding?
- Do you think the quality of life has improved? Economic? Social? Political? Environmental?

1.b Current- General

- How would you characterize your community's conditions today?
- What are the major challenges that your community faces today?
- What are the things you think the community needs the most?
- What are the most positive aspects about your community?

1.c Current – Leadership

- How would you define a good leader? What characteristics do you think he/she should have?
- Who is/are the current leader(s) of the community?
- How would you characterize this/these leader(s)?
- Do you feel that the current leadership is effective? Is it representative? Transparent?
- If not, why not?
- Is the leadership rotated? If so, how often?
- Is the leadership controlled by any specific group, such as a family or people from a given political party?
- Does the community leader(s) have any special connection with the local, state or federal government?

- Does the organization or its leader(s) have a special connection to an entrepreneur such as a timber company owner or a private forester?
- Does the organization or its leader(s) own any timber-related business?
- Does the organization or its leader(s) own any private technical forestry services?

1.d Current – Forest Institutions

- Are there any rules about what can be done in the forest? If so, which?
- Do you have any rules related to use of forest products? If so, what are the rules? If not, why not? If yes, which ones?
- Are there people assigned to monitoring the compliance with these rules? Are the rules enforced?
- Do you have a management plan for the forest?
- Are there areas designated as protected areas in the forest?
- Who designated these areas? The government, the community, the forester,…?
- Why was it designed as a protected area?
- Is the community paid to protect that area?
- Do you have or have you had in the past problems with illegal logging?

2. Inter-Community (ICO)

2.a ICO History

- Is your community a member of an ICO (union etc.)?
- If no: Why not?
- Has there been any discussion in the community about joining an ICO?
- Was your community a member of an ICO before but not anymore?
- If it was and is not anymore, why did the community leave the ICO?
- If yes: Was your community one of the founding members?
- If not: When did your community join the organization?
- Do you recall what was/were the main motivations for joining the ICO? What did the people say in favor of joining?
- Were there individuals from this community involved in the creating the ICO?

- What was happening in the region in those years?
- Were there any conflicts in the region? Any problems with the forests?
- What did the ICO X did for you in those initial years?
- Did you notice any changes in the community after you joined the ICO X?
- Are you aware of any changes in the organization since its origins?
- If yes: What kind of changes? Large or small?
- Would you characterize these changes as positive or negative?
- Since its origins, have you been involved in the ICO directly in some way?
- What was your experience in the organization?

2.b Current ICO Services

- What things does the ICO do for you today? What services does it provide to your community? Examples:
  - Accessing resources from specific programs?
  - Lobbying or meeting a government agency on your behalf?
  - Establishing more connections with other communities in your region to learn more about the problems in other communities in the region and the strategies they are using to deal with those problems?
  - Providing technical or capacity-building courses?
  - Accessing markets?
  - Providing a price list?
  - Does the Association help in any way in the management of your forest or at the micro-regional or regional level? Has it established any rules or designed any plans about this issue? Has it implemented any projects related to this?
- What have been the organization's major achievements in the last 5 years?
- How relevant do you think are the services that the ICO provides to your community's needs?
- Do you think the ICO is helping your community improve its condition?
- If not, why do you think it has not? Are there any social, legal, political or economic issues preventing the association from helping you?
- If yes, in what ways?

- How do you think the organization could better contribute to your community?
- Do you feel that the organization benefits everyone equally in your community?
- If not: Are there people in the community that are benefiting more than others?
- Do you think the organization helps all its *member communities* equally?
- Do you feel that you are benefiting less than other communities? If so, why do you think this is?
- Why do you think the community still remains a member?

2.c Governance and Representation

- How is your community involved in the ICO?
- Do you have to pay for membership?
- How is your community's voice represented in the organization?
- Who makes the main decisions in the organization?
- How are these decisions made? Consensus, majority vote, the leader decides, etc.…
- Are all members represented in the same way? If not, why not?
- In your opinion, do you feel the ICO is representative and transparent?
- Does the organization hold regular meetings or assemblies? If so, what issues are discussed there?
- ¿Do you feel that your community's voice is heard in those meetings?
- ¿Do you feel that dialogue is promoted? ¿Do you feel that criticism and dissidence is permitted?
- How are conflicts or differences of opinion managed within the organization?
- Are there currently any important conflicts within the organization?
- How much influence do other actors from outside the social sector, such government political appointees, foresters, or timber company executives have in ICO decisions?
- In your opinion, how does the organization manage its finances?
- Would you characterize the financial management of the organization as transparent?
- Does the ICO provide the community with any reports about its finances and activities? If so, how often?
- Have there been any problems with the management of the organization?

- How have these problems been handled? Were those responsible punished in any way?

2.d ICO Leadership

- Who is/are the current leader(s) of the ICO?
- Is the leader a member of a community?
- Or is he from outside the community (e.g. government appointee, forester, timber company executive, NGO representative)?
- How was the leader selected? E.g. appointed by the previous leader, appointed by the government, appointed by the forester, appointed by a community committee, by consensus, by majority vote?
- How would you characterize this/these leader(s)?
- Do you feel that the organization's leadership is effective? Is it representative? Transparent?
- Is the leadership rotated? If so, how often?
- Is the leadership controlled by any specific group, such as a family or people from a given political party?
- Does the organization or its leader(s) have any special connection with the local, state or federal government?
- Does the organization or its leader(s) have a special connection to an entrepreneur such as a timber company owner or a private forester?
- Does the organization or its leader(s) own any timber-related business?
- Does the organization or its leader(s) own any private technical forestry services?

3. Community-government relations

- Overall, how would you qualify your relationship with the government?
- Are there any particular agencies with which you have a special relationship, like CONAFOR or SEMARNAT or the state environment agency?
- Has your community (as a community, not as individuals) received any government support from forestry programs in the last 5 years?
- If so, which?

- Are you satisfied with the type and the amount of government support for your forestry projects?
- Does anyone in your community have special relations with any government actors at the local, state or national level that has helped you obtain these benefits?
- How have those supports helped your community?
- Has your community received any supports for other things related to health, education, agriculture, water,…?

4. Other interactions/networks

- Is the ICO part of a bigger regional or national coalition of organizations?
- Does your community have any joint collaboration with other communities?
- If so, what type of collaboration? E.g. Sharing information in meetings, sharing resources or labor (e.g. for road-building or fire combat?), joint projects, written collaborative agreement.
- Is this done through the ICO?
- Do you know if your community is a member of other organizations beside the ICO?
- If so, which?
- What does that organization do?
- Do you have any informal relations (not formal membership) with other neighboring communities for collaboration or joint projects?
- If so, what type of relations?
- Do you have or have recently had conflicts with neighboring communities?
- If so, why? Border disputes,…?

5. NGO supports

- Do you or the community receive help from other organizations, like an NGO?
- In which ways does this organization help you?
- Is it involved in local governance or forest management issues?
- Do you feel this organization has been successful in helping you?
- If not, why do you think is has not?

A1.2. Inter-community organization (ICO) interview guide (for community members who are representatives to the ICO and for other ICO employees)

1. Origins and history (attention to history of grassroots mobilization)

- When was the organization created?
- Who promoted the creation of the organization? Possible examples: general assembly of the community, local leader (associated to a political party?), regional leader (associated to a political party?), government (what agency?), NGO or external
- If possible, record name/s of the leader/s, or organization/s, that persuaded people to form the organization
- Did the people that create the organization have any financial or other support from the government (what agency?)? From an NGO or an international agency?
- What were the primary reason(s) to create the organization? Potential answers:
  - fighting against timber concessionaires
  - fighting against government policies
  - supporting a political party
  - obtaining government funding
  - obtaining NGO funding
  - protecting the forest from illegal or indiscriminate logging
  - scarcity of timber or other necessary forest products
  - declining water availability
  - attraction of wages from forest protection
  - other: _____

- What were the main objectives of the organization once created? Potential answers:
  - protecting forest resources
  - promoting reforestation
  - promoting sustainable timber harvesting
  - promoting sustainable community development
  - promoting vertical integration
  - providing market-related services (price info, contract monitoring, etc.)

  - political opposition or representation
  - resource channeling
- How many members did it have originally?
- Who were founding members? (record names if possible)
- How was the initial ICO committee selected? Possible answers
  - agreed to by all communities through consensus
  - agreed to by communities after some discussion on the names without actual voting
  - executive committee was elected by voting
  - nominated by government officials (which agency?)
  - suggested by NGO/external donor
  - based on a pre-existing committee
- When did the other communities join the organization? Why did they join?
- What was going on in this region at the time the organization was created?
- Were there any conflicts in the region? Any problems with the forests?
- What have been the organization's main changes since its origins?
- Has the membership changed? Has its internal governing structure changed? Have its goals and activities changed?
- What has motivated or influenced your organization to change?

2. Main goals and activities

- ¿What do you think should be the ideal model of a Forest Users' Association? That is, what characteristics should it have to be successful?
- ¿What are your organization's current working models and proposals? ¿How do you visualize your role in community forestry?
- What are the organizations' main goals today for the short, medium and long term?
- How were these goals decided upon? E.g. consensus, majority vote, committee decision, decided by the leadership, recommended by the forester, recommended by CONAFOR, obtained from the Regional Forest Study (ERF)…
- Did other people from outside the communities participate in setting the goals? E.g. government, foresters NGOs or timber companies
- Have these goals changed since the original founding of the organization? If so, how?

- Why do you think the organization's goals changed?
- Did other people from outside the communities participate in setting the new goals? E.g. government, foresters NGOs or timber companies
- What are the organization's main activities to achieve these goals?
- How were these activities chosen? E.g. consensus, majority vote, committee decision, decided by the leadership, recommended by the forester, recommended by CONAFOR
- How long have you been carrying out these activities?
- Do you support your member communities in any way in managing their forests?
- Do you have any strategic plans or projects for the region?
- If so, which? How were they established? E.g. consensus, majority vote, committee decision, decided by the leadership, recommended by the forester, recommended by CONAFOR, obtained from the Regional Forest Study (ERF)…
- In your opinion, what are the main benefits that member communities have obtained from these activities?
- What have been your main achievements and experiences in the last 5 years?
- Do you provide the same services to each member community, or are there services provided only to some communities?
- Do you think all your member communities benefit in the same way from the organization?
- How did your organization participate in the development of the ERF?
- Are your goals, objectives, and strategic plans and projects reflected in the ERF?
- Have you participated or do you currently participate in policy-making forums (such as the state forest council)?
- Does your organization regularly participate in any discussion forums or decision-making bodies, such as regional or state forest councils?
- If so, since when?
- What is the nature of your involvement?
- Do you feel your participation has influenced the forest policies that the government makes?
- Have you had direct input into these policies?

- Are there any activities that your organization is legally prohibited to do?
- Are there any other activities that you feel the organization should not or cannot do? Why?

3. Membership

- How many members does the organization have now?
- Are the members communities or individuals or both?
- Are there any non-community actors (government, foresters, timber companies, NGOs) who are part of the organization's leadership?
- Do you think all the members in your organization have more or less equal conditions, or are some communities much better developed than others?
- If so, why do you think these inequalities exist?
- Do you have member communities that do not harvest timber at all?
- Why do you think that is?
- Do you think this affects your organization in a negative way?
- Do you have any communities that have subdivided into work groups to harvest timber?
- When did this happen? Do you know how?
- Do you think this is affecting your organization in a negative way?
- What are the rules for new members?
- What are the rules for maintaining membership?
- Is there any payment that members have to contribute?

4. Governance and Representation (Related to Decision-Making Autonomy)

- How is each community represented in the organization?
- How are these representatives selected? Possible answers
  - agreed to by all communities through consensus
  - agreed to by communities after some discussion on the names without actual voting
  - executive committee was elected by voting
  - nominated by government officials (which agency?)
  - suggested by NGO/external donor

  - based on a pre-existing committee
- What type of decisions does the organization make? What is its mandate?
- How does the organization make its decisions? What rules have to be followed?
- Who makes the main decisions in the organization?
- How are these decisions made? Consensus, simple majority,…?
- To whom does the organization report its decisions?
- How many times does the association meet per year?
- What issues are covered in these meetings?
- Who gets to participate in these meetings?
- What is average the attendance rate in these meetings?
- How do non-official representatives from communities get to participate? Potential answers:
  - Community members are members but they do not participate
  - Community members are informed of the decisions taken by the ICO
  - Community members are consulted on specific matters without guarantee of influencing decisions
  - Community members are asked to (or volunteered to) undertake specific tasks
  - Community members express their opinions freely whether or not solicited
  - Community members have a say in and influence over decisions regarding ICO activities – if so, how?

- How are conflicts or differences of opinion managed within the organization?
- Are there currently any important conflicts within the organization?
- Are all member communities represented in the same way? If not, in what sense are they not?
- What responsibilities or other requirements has the government established for your organization?
- Do other non-community actors (government political appointees, foresters, timber company executives, NGOs) have any vote in ICO decisions?
- If not, do you think they still have some influence on ICO decisions? If so, how?

- How often do you provide financial reports to the member communities?
- Have there been any problems with the management of the organization in the past or recently?
- How was the case handled? Were those responsible punished in any way?

5. Leadership

- ¿What perspective does your organization have about leadership? What do you consider to be a good leader or leadership team?
- Can you provide the following details about the ICO presidents/leaders so far?
- Who is/are the current leader(s) of the ICO?
- Are the current leaders members of a community? If so, which?
- How were these leaders selected? Possible answers
  - agreed to by all communities through consensus
  - agreed to by communities after some discussion on the names without actual voting
  - executive committee was elected by voting
  - nominated by government officials (which agency?)
  - suggested by NGO/external donor
  - suggested by the forester
  - based on a pre-existing committee

- Is the leadership rotated? If so, how often?
- What is the role of the leadership position(s) in the organization?
- What are the main activities they carry out as leader(s) of the organization?
- Have the leaders had to deal with any conflicts within the organization or with outside actors (e.g. government agencies, foresters, timber companies, NGOs, etc.?)
- If so, what type of conflicts?
- How were they managed or resolved?
- What other challenges have the leadership faced in the organization?
- How have they handled these challenges?
- How would you characterize the leaders' relation with government agencies?
- …with the association's forester?

- …with the board of the Confederación Estatal (AES)?
- …with representatives from the timber industry (Asociación de Industriales Madereros)?
- How often does the leadership interact with government agencies?
- …with the association's forester?
- …with the board of the Confederación Estatal (AES)?
- …with representatives from the timber industry (Asociación de Industriales Madereros)?
- Is the leadership controlled by any specific group, such as a family or people from a given political party?
- Does the organization or its leader(s) own any timber-related business?
- Does the organization or its leader(s) own any private technical forestry services?
- Are there individuals who are not in leadership positions right now but which have a lot of influence in the organization?
- Do the leaders have to have a specific experience and/or training in order to be eligible for leadership positions?
- Do the current leaders have any previous experience related to forestry?
- Do the current leaders have previous experience dealing with the governmental bureaucracy?
- Have they received any specific training for your position as a leader (workshops, courses, etc.)?
- If so, what topics have they covered?
  ___Forest management ___Conflict resolution ___Financial management/accounting ___Proposal writing ___Environmental education ___Roles and responsibilities/ laws and regulations ___Health/sanitation ___Other (describe)

6. Human and physical capital (related to Financial Autonomy)

- What assets does your organization have? (e.g. sawmill, road-building equipment, office space or land,…)
- Do you have any staff? If so, how many?
- Do they receive any special training for their work?
- What was your operating budget last year?

- What is the main source of financial support for your organization?
- Do you have other sources besides this main source? If so, which?
- If so, what percentage of your budget last year came from that main source?
- How many projects did you apply to last year?
- How many projects were approved?
- Do you think the resources you have are enough to meet your goals?
- If not, what are your main financial needs?
- How do you plan to cover those needs?

7. Connections to other actors/ICOs

- How would you characterize your relationship with the federal government? (conflictive, unstable, cordial, close, very close,…)
- Are there any agencies within the government with whom you have a better relationship?
- How would you characterize your relationship with the state government? With the local government?
- Are there any agencies within the government at these levels with whom you have a better relationship?
- How would you characterize your relationship with the forester from the association?
- …with other civil society organizations?
- …with the private timber companies that buy your wood?
- …with other ICOs?
- Does your organization informally or formally work together with other regional ICOs (ARS) in Durango? If so, which?
- What type of relationship is this? E.g. meetings for information-sharing, joint projects, written agreements of cooperation
- When did it begin?
- Is your organization a member of the state AES (Confederación de Productores Forestales del Estado de Durango)
- What does this organization provide to your organization?
- When did you join?

- Is your organization a member of, or collaborates with, any ICOs at the national level? If so, which?
- When did you join (or when did the collaboration begin)?
- What does this organization provide to your organization?
- Is your organization informally or formally affiliated with any political party? If, so, with which?
- How did you become associated with that party?
- Does any of the organization's representatives have or has had a position in a political party? If so, in which?
- How did you/they become a member of the party?
- Do you think being in a political party helps your organization?

8. Government Policies

- Have you received support from any government program such as PROFAS or others before it?
- How has this support helped your organization?
- Can you identify any specific government policies that you think have positively affected your organization?
- Have any government policies negatively affected your organization? If yes, how?

9. Current challenges

- What are the main challenges that your organization faces today?
- Do you think the trade liberalization began in the 1990s with NAFTA has affected your organization in any way? Do you think it has affected your member communities?
- If so, how?
- What plans or strategies have you began to carry out or will carry out for dealing with these challenges?
- Are there any other changes that you think have negatively or positively affected your organization?
- … changes in government policies or programs?

- …changes in your community membership, for instance the formation of working groups in some of your communities, conflicts within a community, conflicts between communities, or conflicts with another ICO?
- How are you trying to adapt to these changes? Have you taken any specific actions to deal with them or do you have any plans to do so?

A1.3. Additional questions for ICO leaders only

- In your opinion, what are the characteristics of an ideal leader?
- How did you get involved in leading this organization?
- Did you have previous leadership positions in this or other organizations?
- When you entered the organization's leadership, did you have any previous training in forest-related issues?
- Did you have previous experience dealing with the governmental bureaucracy?
- Have you received any specific training for your position as a leader (workshops, courses, etc.)?
- If so, what topics have they covered?

___Forest management ___Conflict resolution ___Financial management/accounting ___Proposal writing ___Environmental education ___Roles and responsibilities/ laws and regulations ___Health/sanitation ___Other (describe)

- How would you define your role in your leadership position in the organization?
- What are the main activities you carry out as leader of the organization?
- Have you had to deal with any conflicts within the organization or with outside actors (e.g. government agencies, foresters, timber companies, NGOs, etc.?)
- How did you handle those conflicts?
- What other challenges have you faced as a leader in the organization?
- How have you handled these challenges?
- How would you characterize your relation with government agencies?
- …with the association's forester?
- …with the board of the Confederación Estatal (AES)?

- …with representatives from the timber industry (Asociación de Industriales Madereros)?
- How often do you interact with government agencies?
- …with the association's forester?
- …with the board of the Confederación Estatal (AES)?
- …with representatives from the timber industry (Asociación de Industriales Madereros)?

A1.4. Interview Guide Government Agents and Foresters

1. Main challenges in forestry sector in Durango

- What do you consider are the main challenges in the forestry sector in Durango?
- How can these challenges be addressed?

2. Main challenges in forestry sector in the region (UMAFOR)

- What do you consider are the main challenges in the forestry sector in the region X?
- How can these challenges be addressed?

3. Role of Government in community forestry and its relationship to ICOs

- What is the role of your agency in community forestry in Durango?
- What kind of activities do you carry out related to this sector?
- Do you have any relationship to any regional, state or national ICOs?
- If so, what kind of relationship? E.g. informal meetings to share information, joint projects or activities, formal agreements of cooperation?
- What role does your agency play in decision-making forums such as the State Forest Council and the Consultative Council for Sustainable Development (Consejo Consultivo para el Desarrollo Sustentable)?
- What role did you play in the elaboration of the Regional Forest Study (ERF)?

4. Role of ICOs in community forestry

- What do you think is the role that ICOs have in community forestry in Durango?
- From your experience, what kind of impacts have they had in community forestry?
- What are the main challenges that you think ICOs in Durango face today?
- Do you think they have the capabilities to deal with these challenges?
- If not, what do they need?
- What do you think is the model of an ideal ICO? What characteristics should an ICO have to be successful?

- What are your thoughts on the issues of autonomy and leadership in ICOs in Durango today?
- What role did the Association play in the elaboration of the Regional Forest Study (ERF)? What role did communities play?
- Do you have any specific knowledge of the following ICOs? (names of FA-1, FA-2, FA-3, FA-4)

- On a general level, how would you classify the leadership of each of these?
- What are the most positive and most negative attributes of the leaders?
- How would you classify the success of these organizations in promoting sustainable forestry in their regions?

5. Impact of UMAFORs, PROARBOL and other government policies on ICOs

- What balance can you make of the current government policies regarding the forestry sector?
- What do you think has been the impact of UMAFORs, PROARBOL and other government policies on ICOs?
- What policy changes do you think need to take place for the government to have a more positive impact?
- How has trade liberalization affected the forestry sector?

6. Role of other actors (NGOs, foresters, industry) in community forestry

- How do you understand the current relationship between foresters and Durango's ICOs?
- …between the state government and Durango's ICOs?
- …between the municipal government and Durango's ICOs?
- …between NGOs and Durango's ICOs?
- …between the timber industry and Durango's ICOs?
- Which of these actors do you think has the most influence on ICOs?

APPENDIX 2. Types and Level of Benefits Perceived by Communities in the Four FAs

A2.1. Types and Level of Benefits Perceived by Communities in FA-1

Community (N=15)	***Benefits perceived by leadership***	***Benefits perceived by community assembly and/or other community members***[128]
1	*None/Very low* - None, because of bad leadership and politicking (faulted F. Delgado)	*Moderate* - Resource channeling in forestry. Pure "*Gestoría*" - Resource channeling in agriculture and livestock (general). Pure "*Gestoría*" - They don't do commercialization anymore
2	*None/Very low* - None, because of mismanagement (faulted R. Barraza); ARS should help with price setting, commercialization/ industrialization	*Low* - None, because of bad leadership and because they are small and poor (faulted R. Barraza) - Resource channeling (little) in agriculture: oat seed subsidies, wire for fencing
3	*High* - None until recently, because they are small and poor benefits, only to large and rich communities (faulted R. Barraza) - Now resource channeling in forestry: ProÁrbol - Resource channeling in basic infrastructure: the FA leadership wrote a letter to the Governor about the need to pave the community's road	*Moderate* - Resource channeling in agriculture: Wire for fencing, hose, fish farm, fruit (apple) trees, small things - "It all comes the *Forestal* (forestry services), the Union, and the government as well, between all of them."
4	*Moderate* - Information - Resource channeling in agriculture: oat seed subsidies - Resource channeling in forestry:	*Low* - Resource channeling in agriculture: oat seed subsidies - Problem-solving and representation - Information

[128] All the information in this column, except for that associated communities 2, 3 and 4, comes from focus group discussion with the general assemblies of those communities. In the case of these three communities, the information came from individual interviews with several community members.

	points in CONAFOR programs - But to them not so much because they can obtain these on their own; may meetings are to share information about projects that they're not interested in or they already knew about	- No direct benefits (utilities), and ARS should help with commercialization
5	*None/Very Low* - None, because they are small and poor - benefits only to large and rich communities (faulted R. Barraza and F. Delgado) - Only the points awarded for CONAFOR applications	*Moderate* - Resource channeling in agriculture: Subsidized oat seed and fertilizer - Resource channeling in forestry: points in CONAFOR programs (mandatory), fire combat equipment - None according to some, very little according to others
6	*High* - Resource channeling in agriculture: Subsidized oat seed, fruit trees - Resource channeling in basic infrastructure: SECOPI (road)	NA
7	*Low* - None until recently, because they are small and poor - benefits only to large and rich communities (faulted R. Barraza). - Now resource channeling in agriculture: subsidized oat seed	NA
8	*High* - Information (about forestry programs) - Resource-channeling in forestry: CONAFOR (mandatory), training in tree measurement, fire brigades, *acordonamientos*, fire lines, employment - Problem-solving: IMSS, Treasury	NA
9	*Moderate* - Unity - Problem-solving: CONAFOR/PROFEPA, IMSS, Treasury (for 'large problems')	
10	*Moderate*	NA

	- Resource channeling in forestry: CONAFOR (mandatory) - Problem-solving: IMSS, PROFEPA, SEMARNAT - Resource channeling in basic infrastructure: SCT	
11	*Moderate* - Resource channeling in agriculture: Subsidized oat seeds and fertilizer	NA
12	*Moderate* - Unity - Problem-solving: IMSS, CFE, Treasury	*Moderate* - Resource channeling in forestry: payments for environmental services, other CONAFOR programs - Resource channeling in agriculture: fruit trees (during P. Hernández) - Capacity building: experience exchange course in Michoacán for community leaders - Timber commercialization project (during P. Hernández, unfinished) - Formation of communities (during initial years) - None according to some
13	NA	*Moderate* - Resource channeling in agriculture: Subsidized oat seeds and fertilizer, women's tortilla shop - Problem solving: IMSS, Infonavit - Price list (not anymore - until 4 years ago) - But to them not so much because they can obtain these on their own; sometimes the FA is the one asking them for help (same as La Victoria)
14	*None/Very Low* - None, because it is used as "political trampoline" and because there is preference towards large and wealthy communities (ARS should channel resources and provide advisory services)	NA

15	*None/Very low* - Resource channeling in forestry: *gestión* (agency) (During period with R. Barraza) - Resource channeling in agriculture: oat seeds, fertilizer, wire fencing and fruit trees (During period with R. Barraza) - Representation (general) - None currently (from ARS). There are studies being done but no supports. It's not true that you need to be in the ARS for Proarbol (CONAFOR) supports.	NA

A2.2. Types and Level of Benefits Perceived by Communities in FA-2

Community (N = 12)	***Benefits perceived by leadership***	***Benefits perceived by assembly/ other community members***
1	*High* - Resource channeling in forestry: resources for soil conservation, tree pruning, and other projects - Unity: government supports organizations more than individual communities - No support in agriculture	*Very low* - Resource channeling in forestry: Some supports (programs) but very little, ex. cordons project only $10,000 - "Nothing" according to one ex-Comisariado. - They do not visit the community and do not ask about the community's needs. The forester puts little effort and has no interest in helping them
2*	*Moderate* - Resource channeling in basic infrastructure: Paving of Navíos-Regocijo road; Electricity - Resource channeling (general) - BUT the role of UNECOSID is combined with the *gestión* of Toño Mancinas (Forestal Líder)	NA
3	*Moderate*[129] - Resource channeling in forestry and general: All the government resources for the community (CONAFOR mainly) - employment, etc. - Resource channeling in basic infrastructure: Paving of Navíos-Regocijo road - Unity: if a large social or political problem came up, then the Union could help - But need more supports for employment, and no projects for sustainable development - Mostly for political activities	*Moderate* - Resource channeling and lobbying in general: When there are supports at regional level they channel them (according to an ex-Comisariado); if there is no one there lobbying the supports do not come down. - Resource channeling in basic infrastructure: Paving of road; Electrification - BUT Now mostly for political activities (used as political 'ladder') - No benefits (according to two community members) - BUT it also depends on the Comisariado's actions and whether he approaches the Union's leadership for help

[129] Note the drastically diverging perspectives from different members of the Comisariado. The president and CV said that the benefits were moderate to high, while the Treasurer said that they were minimal and that except for the government programs channeled, there had been no projects for sustainable development.

4	*High* - Resource channeling in basic infrastructure: Paving of Navío-Regocijo road; Electricity - Addressing community needs - Resource channeling in forestry: Eco-tourism project - Unity	*Moderate* - Resource channeling in forestry: general, eco-tourism project (4 log cabins) with funds from Municipal Rural Development Agency - BUT they are too slow to apply for project funds and in the tree markup, they need more employees - Consulting/advising (information) - BUT they pay for that (forestry services) and its only given to the *Comisariado*, many don't know - Resource channeling in basic infrastructure: The 'road' (paving/improvements of Navío-Regocijo road)
5	*High* - Forestry services: control of the timber volume - Resource channeling in forestry: Ecotourism and hunting area (UMA), financial support for new management plan - Information about anything they need - Unity: If they weren't in the Union many things wouldn't get done	*High* - Resource channeling in forestry: ex. support for eco-tourism (El Bayo project) - Forestry services (no problems) - Advise/information about support program - Help with solving problems - BUT the community needs to be more involved, "he who doesn't speak, God does not hear"
6	*High* - Cheap forestry services - Resource channeling general: They have supported them "a lot". Efforts in different municipal, state and federal agencies in support of applications, including large projects that they could not have done on their own - Resource channeling in agriculture: Trout farm, though it is currently not operating - Resource channeling in forestry: Tree nursery - Resource channeling in basic infrastructure: Potable water	*Level NA* - Resource channeling in agriculture: Trout farm, though currently not operating; subsidized oat seeds; pork farm for one community member; farm tractors - Resource channeling in basic infrastructure: school

	(information provided by Graciano in UNECOSID assembly); Improvement of road to Navajas (information provided by Graciano in UNECOSID assembly)	
7	*High* - Resource channeling in basic infrastructure: Paving of Navíos-Regocijo road; Electricity; Rehabilitation of the potable water network (in process); Cement for house flooring (in process) - Resource channeling in agriculture: Subsidized corn and oat seeds - Any community needs	*High* - Unity: makes them stronger *vis a vis* government agencies (for doing resource channeling) - Resource channeling in general: of government supports (most important according to one) - Resource channeling in forestry: provides employment - Resource channeling in agriculture: Nutritional supplement for livestock in drought periods, application for oat seed subsidies - BUT, the problem is the supports take a long time to get to the community because they have to be approved in Guadalajara (centrally) - Resource channeling in basic infrastructure: Potable Water; Road and electricity, although in these and the water the community itself also intervened as well as the road committee; Housing improvements - Fomenting information, cultural, and economic exchange between member communities - Other two community members: No benefits
8	*Moderate* - Advice (information) about to government programs - Resource channeling of government programs in general - Forestry services: good advice on how to manage the forest, if there is a problem like a plague (trees dying) they immediately help out - Unity = strength - But there is poor communication and consequently disinformation,	*High* - Courses/capacity-building (how to manage the forest, the livestock range) - Resource channeling in forestry: clearings and pre-clearings (*aclareos*), mini-dams (*presas filtrantes*), contention walls, reforestation, wildlife management unit (UMA), equipment and *dispensas* for fire brigades - Advise (information) with

	and they have not met their goals, they are somewhat stuck	everything, e.g. what projects to solicit - Help with anything you need, e.g. if the pine trees are dying, they come and cut them (problem-solving)
9	*Low-Moderate* - Forestry services: this is a "great" benefit and it is what has driven the Union's successes - Resource channeling in forestry: reforestations, pruning, mini-dams - But no benefits except for that, no agricultural benefits, those are directly channeled by the *Comisariado* with the municipal Rural Development agency - Lack of communication, politicking and lack of vision of what a Union is for the benefit of communities - The Union should provide legal services, veterinary services (for cows, etc.), accounting advice and capacity-building	*Moderate* Ex-Pres Com: - Resource channeling for forestry: reforestation, pruning and *presas* - But only focused on forestry, no benefits in agriculture
10*	*None* - No services, no benefits - Only forestry services, but they don't receive them from the FA because they are more expensive, and there are no projects.	*Moderate* - Resource channeling in basic infrastructure: Road improvements - Unity: "union makes the strength, without it there is nothing" - Resource channeling in agriculture: ex. subsidized oat seeds, fencing wire - Forestry services, though they don't receive them because they are more expensive - BUT in their community they are very problematic and once they did not do the job correctly and because they did not fix it or returned the money now they can't get more supports - And if the Comisariado does not approach the Union, there will be nothing

11*	*Moderate* - Resource channeling in basic infrastructure: Potable water; Electricity	NA
12	NA	*Low* - Resource channeling in forestry: reforestation, pruning, clearings, etc. - Problem-solving - Resource channeling in basic infrastructure: Road repair and paving (long time ago, when they had a motorgrader) - Benefits used to be high, BUT now have decayed and are low - No benefits according to some

** These communities do not receive forestry services from the Union, though they are members. Community #12 stopped receiving the services in 2011.*

A2.3. Types and Level of Benefits Perceived by Communities in FA-3

Community (N=10)	***Benefits perceived by leadership***	***Benefits perceived by assembly/ other community members***
1	*High* - Forestry services: offices (rented), well-equipped, when there is a fire immediately they combat it. Volume increased by 5-10% in the new study, forest is better than 20-25 years ago. - Resource channeling in forestry: supports from CONAFOR for reforestation, cordons (*acordonamientos*),… - Resource channeling in agriculture: Oat seeds, pesticides, even though the function of the UP-LVM is not agricultural - Resource channeling in infrastructure: Through PROARBOL they obtain supports for road improvements. Also lobbied for the paving of the San Miguel de Cruces road - Investment in public goods: road improvement quota ($1 MXN/m3 to fix holes in the region's main road), tree nurseries, watchtowers, radio communication system (used for accidents, etc.) - Unity (reason for forming): More strength together - "For any support the Union is the one that asserts us" (*"la que nos hace valer"*)	NA
2	*High* - Resource channeling in infrastructure: Paving and maintenance of the region's main road. - Investment in public goods: Quota for road maintenance and improvement. Radio communication, 5 fire watchtowers, and a fire truck. Fire brigades in each community and at the FA level	*High* - Forestry services (ownership); other services only do tree mark-up they offer much more - Resource channeling in forestry: courses about forest management and wildlife (capacity-building), reforestation. They have become aware of the benefits of clearing and reforestation. They receive points in the applications for

	as well. As a result, fires are very well controlled in the region. Radio has served to ask for help in emergencies (e.g. accidents) or to report forest fires. Two tree nurseries (one in their community) - Resource channeling in agriculture: subsidized oat seeds - Capacity-building: Talks about how to do proper forest management ('treatment') practices - If not in the Union, access to resources would be reduced	belonging to the Union; they are told that if they leave the Union they will not get supports because the government wants them to be united. Supports generate employment in the forest. In almost all the community's projects the FA was always the one intervening, e.g. in the drier for the sawmill and the trout farm (the largest in the state). - Resource channeling in agriculture and livestock (general): promotes "regional development" - Resource channeling in infrastructure: Lobbying and "acts of presence" for road paving and electrification - Investment in public goods: 2 tree nurseries, one here and one in Durango, monetary contribution for road paving (achieved in combination with lobbying); radio communication (more than 200 radios), which helps in emergencies (e.g. car accident two years ago) - Unity: If the agencies see that he communities are well-organized, they give supports - BUT…Union has not fought for fair timber prices (Price regulation) - Forestry services are too expensive
3	*Moderate* - Resource channeling in forestry: supports to do the works in the forest – e.g. clearings, reforestation (a lot), fire combat. As a result there is an observable improvement in the forest. There have been no fires in the last few years.	*Moderate* - Forestry services: The treatment given to the forest is very good, the forest is well-conserved - Resource channeling in forestry (sometimes): reforestation, clearings, cordons, pruning, mini-dams, UMA - Investment in public goods: Fire watchtowers, Radio

		communication - BUT forestry services are too expensive (among the most expensive in the state) - They do not help with non-forestry issues - The community made a financial contribution for an electrification project and the project was never done, but the FA kept the money
4	*Moderate-Low* - Resource channeling in forestry: reforestation, cordons, pruning and clearings - Forestry services: 'Good', they strongly protect the forest, as opposed to other forestry offices. The forest has improved because of reforestation and the proper markup of trees (marking only defective trees) - Investment in public goods: Fire combat and radio communication - Price list, BUT the prices are always lower than at what they sell - Not many benefits because the leadership is weak	*Moderate* - Resource channeling in forestry: Cordons, clearings, reforestations - Investment in public goods: Personnel and vehicles for fire combat, fire watchtowers - Resource channeling in agriculture: subsidized oat seeds, fertilizer, though not for them because they don't grow much - Resource channeling in infrastructure: they provide interest-free loans for housing improvements (through SEDESOL) - Resource channeling in other areas: Food bags - Supports are not much but not little. - Forestry services: Service is good. Forest management is done very well, they never leave them alone (advice/accompaniment)
5	*Moderate* - Resources channeling in forestry: CONAFOR programs – reforestation, cordons,…environmental compensation project –all the FA's communities got it because of the Union's good standing with the government - Resource channeling in agriculture: subsidized oat seeds (for first time this year) - Resource channeling in	NA

	infrastructure: Lobbying the municipality for the electrification of the region, Paving of SMC road - Forestry services: The services are provided to all the member-owners and they are good, they help with anything that you need	
6	*High* - Resource channeling (general). "bridges" to get to the agencies. The Union has a lot of strength. They design the projects (applications) and move the paperwork, you only have to sign. They know the community well and do not involve it with projects that are not needed. - Forest improvement	*High* - Forestry services: No illegal logging. Mark-up is well done, only the most crooked are cut, and timber volumen is increasing (*están engordando y no se están acabando*). They have become more involved in the more technical aspects of management. Before there were government forest guards revising the timber shipments and now each community has their own documenter (*documentador*). Change from Doyle to metric system. - Economic strength and political strength, which has allowed them to reach political positions, e.g. municipal asssembly (*Regidor*) and to obtain the most resources of any association in the whole state
7	*High* - Resource channeling in agriculture: subsidized oat seed, tractors, fertilizer, etc. - Resource channeling in infrastructure: health clinic, roads - Resource channeling in forestry: this is "the (association's) strength" – PROARBOL programs, e.g. payment for environmental compensation program (land use change) - But, sometimes leader asks for money for projects and then doesn't bring them, e.g. solar panels for his house	*Moderate* - Unity - Resource channeling in forestry: e.g. reforestation, though without the desired result (survival rate), fencing for reforested areas (though some steal it), and soil conservation (cordons, mini-dams). BUT they keep 20%, it's too much, and the services are too expensive - Resource channeling in infrastructure: Electrification of the region (Electrification Committee) - Radio communication system

		- BUT no direct monetary gains (*utilidades*)
8	*High* - Resource channeling in forestry: clearings, pruning, mini-dams, cordons, reforestation	*High* - Forestry services: Good service. Marks up the defective trees and leaves the good ones, and does not cut too much in the water sources (*ojos de agua*). As a result the forest has improved and timber volume has increased - Resource channeling in forestry, BUT they keep 20%, it's too much, and the services are too expensive and keeps increasing - Investment in public goods: fire watchtowers, radio communication system, tree nurseries (if they bought the plants from another producer they would be more expensive).
9	*High* - Forestry services: Protection and conservation of the forest, of the environment and the fauna (e.g. UMA) - Investment in public goods: Radio communication, and sometimes a pick-up truck when they need it to transport things or people	*High* - Forestry services: Protect the forest a lot. Mark-ups are well done. Help in combating fires, reforestations, protection of fauna, cordons. As a result the forest is better than before, because there are no more fires - Investment in public goods: Radio communication system; support for fire combat brigades - Unity - BUT the forestry services are too expensive
10	*High* - Resource channeling in forestry: reforestations; they provide advice and "are the ones in front so that the supports come" - Forestry services: good mark-up, the forest has improved, fire combat – forest fires have been reduced a lot in the last 10 years - Investment in public goods: Radio communication system and fire watchtowers	NA

A2.4. Types and Level of Benefits Perceived by Communities in FA-4

Community (N=13)	***Benefits perceived by leadership***	***Benefits perceived by assembly/ other community members***
1	*Low* - Resource channeling in forestry: PROARBOL programs to promote better forest management. This is what he understood from the last FA meeting - Low before, now will be better because leader 'obtains a lot'	*Low* - Resource channeling in forestry: Capacity-building courses, analysis of the community (done a long time ago), supports for cordons and mini-dams. They invited them to courses but did not go. - Investment in public goods: Road improvement machinery, BUT they did not want to make the required monetary contribution so they have not used it. - They have not been too close to the FA. The problem is not the FA but the lack of commitment from the community
2	*Low* - Investment in public goods (with E. Palma): machinery for road improvement, fire brigades - Before E. Palma NO benefits	*Low* - Investment in public goods: fire brigades (this year will be paid by the FA), BUT they have always paid for the brigades and they have never used the road imrpovement machinery - All the benefits have gone to one sub-region (side closer to the forester's office) - The previous *Comisariado* gave no information about the FA - The problem begins when FAs become political because that's when they do not do the job they're supposed to, and that's where they break down
3	*None* - No benefits - He knows about the road improvement machinery but they have not seen it working in their road - Not very well informed about what	NA

	the FA does or its objectives. He didn't go to the FA meetings in 2010.	
4	*None* - No benefits; maybe they're isolated because they are with a different forester - One of them thinks they are not in the FA (though they are officially a member) - The problem of becoming a member would be with the monetary contributions because the people in the community have no money	NA
5	NA	*Moderate* - Resource channeling in forestry: Payment for Environmental Services (PSA) program, region-wide permit for extraction of cellulosic material (FA did the technical study), increased possibilities of funds being approved, capacity-building courses - Investment in public goods: Road improvement machinery which has helped them fix their road, fire watchtower and brigade – no fires in the last few years - BUT not a lot of benefits according to some
6	NA	*High* - Resource channeling in forestry: points in applications to CONAFOR for being a member of the FA, equipment for fire brigades - Investment in public goods: Machinery for road improvements, 3 fire watchtowers (partly built with resources channeled and part was contribution) and fire combat brigades ((1) Cerro Barajas, (2) Ciénaga de la Vaca, y (3) Arroyo de las Piedras)

		- Resource channeling in basic infrastructure: large road improvement project in the first years (improvements in roads from Ciénaga Larga to El Coyote, Ojito to Ciénaga Prieta and Ciénaga de la Vaca to Guanaceví) - BUT "before they (the FA) worked, now they don't". Lately the communities don't want to pay the quota. It's because the previous FA president and the forester (Navar) did not inform the members about the projects they channeled.
7	*Moderate* - Resource channeling in basic infrastructure: road improvements - BUT he just became *Comisariado* and is not well informed	NA
8	*Low* - Investment in public goods: Road improvement machinery, fire watchtowers which help in improving forest management (better detection of forests) - NO benefits related to resource channeling: The benefits that come out are not directly from the FA, they are channeled by the community's forester, the FA does not get involved at all in the communities' supports.	*Moderate* - Forest management was controlled, forest is well conserved - Investment in public goods: Road improvement machinery - Resource channeling (general)
9	*High* - Resource channeling in forestry: capacity-building courses about forest management, e.g. how to do the cordons. These are channeled between the FA and the forester. For some programs the government asks that communities be incorporated into an FA and they give points for it. Resources for fire watchtowers - Unity: Work is better united, they (the FA) bring ideas, they have	*High* - Resource channeling in agriculture: agricultural tractors, fish farms (El Toro) - Resource channeling in basic infrastructure: roads - Resource channeling in forestry: clearings, cordons, environmental services, environmental compensation - Investment in public goods: road improvement machinery,

	machinery and pay the brigades - Investment in public goods: Road improvement machinery and payment to fire brigades and the *torristas* (the people in the fire watchtower) , fire watchtowers - Resource channeling in basic infrastructure: Road improvement machinery	equipment for fire combat (towers and brigades –one is in the community) - Information: through the UMAFOR they become informed about the different programs available - Regional Forest Study: first in the whole country - Political representation: for *gestiones*
10	*Moderate* - Resource channeling in forestry: leads to more employment - Investment in public goods: Road improvement machinery	*Moderate* - Resource channeling (general), BUT not many - Investment in public goods: Road improvements with the road improvement machinery, fire combat brigade and tower, which has led to reduced fires - Unity: The government says that it will provide more support to communities that are united. In their community supports have increased.
11	NA	*Moderate* - Investment in public goods: Fire watchtowers and fire combat brigades (tower built with investment from the FA, brigade paid for by the FA), road improvement machinery - Resource channeling in basic infrastructure: Support from CONAFOR to fix the road 3 years ago - But not enough supports for the road and insufficient information about government programs
12	NA	*High* - Investment in public goods: Fire watchtower, fire combat brigade, road improvement machinery and investment for road improvement (2009), - Resource channeling in forestry: Resources to purchase equipment

		for the brigade - Information: Good information in the FA assemblies; Promotion and diffusion of the CONAFOR programs (1 year), diffusion of the Regional Forest Study (2011)
13	*High* - Resource channeling (general): "through the organization it's easier to transact and make *gestiones.* It's easier than if each person would do the request separately because here people sign and they have someone to represent them." More supports come in (are approved) because requests are made through an organization, all together. - Investments in public goods: Fire watchtowers and fire brigades, which facilitates fire prevention and combat. Has helped with reducing fires. - Unity: "unity brings strength" (related to resource channeling)	

APPENDIX 3. Evaluations of leadership by community and external observer in the four FAs

A3.1. Current Leadership Evaluation by Communities in FA-1

Community (N=14)	***Evaluation by Community Leadership***	***Evaluation by Community Assembly/other community members***
1	NA	*Poor* - Assembly consensus: they don't feel well represented or informed (**lack of rallying power, lack of information**) - One ex-leader doesn't know who the current FA president is - No support with commercialization and timber prices (**lack of *gestión***) - President has visited but not to talk about the FA, rather to talk about the municipal elections (**use for personal political benefit**) - Ex-comi: FA has always been used with political purposes, to escalate **(use for personal political benefit).** - And then the losing factions put many impediments because of personal interests **(lack of multiple/shared leadership: FA-community**) - Community leaders don't inform their assemblies properly about the FA and communities don't contribute financially **(lack of multiple/shared leadership: FA-community**)
2	*Very poor* - **Lacking rallying power** (mobilization power) ('it hasn't motivated communities to participate')	NA
3	*Very poor* - "Very grey"	Ex-president of Comisariado:

	- "No leadership", he takes it as a job and if he doesn't get paid he doesn't do anything - Politicized, used as political stepping-stone (**use for personal political benefit)** - **Lacking organization and rallying power** (mobilization) - Before the union was much stronger, it was a model; previous president was a true leader	*Good* - "**Serious, trustworthy, and committed**", but he's just starting so he couldn't say.
4	*Good* - He is **"doing things"** to the extent that he can (**effort)** - But he came in "bad times"	*Good* Ex-president of Comisariado: - **"Very honest"** - Very **easy to relate to** ("*muy tratable"*), and he is - **Well-prepared** - But he hasn't done much to help commercialize timber.
5	*Good* - **"Has worked well"**, but with difficulties because of **lack of resources**	NA
6	*Good* - Has **"put effort into it",** but he's just starting	*Poor* Has not visited the community
7	*Good* - Has **knowledge (accounting) and much experience**	NA
8	*Good* - Everything he has done has been for the benefit of the communities (**collective benefit)**	NA
9	*Regular* - They manage through '**inertia**'. - They are not in the FA because they want to, but because it is a federal government requirement in order to obtain funds	NA
10	*Poor* - The election process has affected them because the large communities don't pay (**lack of resources, multiple/shared leadership: FA-community**).	NA

	- However, if they would be good leaders and if they really wanted to work they would do it for free and would look for projects to sustain themselves, but they don't.	
11	*Regular* - Has "**put effort into it**", he works and has **good initiative** (enterprise) - But "**he has not been able**" and has become increasingly "**disheartened**" because the large communities do not want to contribute and he has no $ (**lack of resources, multiple/shared leadership: FA-community**)	NA
12	*Good* - Has "**put effort into it**" - Has been **transparent**	NA
13	*Poor* - Perhaps he could be good if he applied himself (**lack of discipline/persistence**). - But he hasn't come to the community and does not know the community's problems, so he cannot help solve them (**lack of presence, lack of knowledge)**	NA
14	*Poor* - **Lacking organization, strictness, and "projection"**. - The ARS leadership should look more important than the communities' leaders, because it is the representative of all the communities.	*Poor* - Did not respond to a community petition to intercede on a border conflict**. (lack of *gestión*)** "[The president] has no direction (*no tiene orilla*)".

A3.2 Current Leadership Evaluation by External Observers in FA-1

External observer (N = 11)	***Evaluation***
Forester of one community in the region	*Regular* - **Good intention** but **lacking insistence/persistence**
Forester and longtime employee of region's main forestry services office	*Very poor* - "Very **cold**, **timid**, **without** much leadership or **rallying power**."
Forester of one community in the region	*Regular* - **Good intentions** but **lacking insistence,** needs to be stronger to convince the members to participate
Forester of one of the communities in the region	*Poor* - They are political (**politicized**), they are very involved in the PRI's campaign, although now less political than with the previous president (Mr. B.) who was "a politician."
FA-1 forester	*Very poor* - **Very poor functioning** (compared with previous president) - They don't pay him and he gets assigned tasks that the president and the secretary (president's daughter) should be doing, like organizing the meetings and making copies.
CONAFOR official	*Poor* - Not enough experience to be a leader, he is **lacking experience**. - The **division between small and large communities** has really affected them (**multiple/shared leadership: FA-community**). - But he is **honest** and **does not have personal political and economic interests**, unlike the previous president.
SRNyMA official	*Regular* - Lower in comparison to previous president - **Not as much presence** in the government agencies. The reason is the **internal divisions** (**multiple/shared leadership: FA-community**)
Ex-municipal president in FA-1 region	*Poor* - The Union has never had good leaders, only people **seeking personal benefit**, because "they are **political positions** and they are inherited."
CONAFOR oficial in charge of ARS associations	*Regular* - **Previous experience** with internal organization

	- **Medium vision** of what they expect - Leadership changes in the periods required by the bylaws - Capacity to reach internal agreements: poor - Capacity to develop projects: poor - Capacity to make external connections: regular - **Participation of members is very limited** because of a lack of good leadership as well as an updated internal regulation (**multiple/shared leadership: FA-community)**
President of state foresters guild	*Poor* - The members have a **positive view** because he represents **alternation** with another group which had been leading the organization - Ability to reach internal agreements: poor - Ability to develop projects: poor - Ability to build external connections/networks: poor - Low interest in ***gestión*** **(lack of *gestión*)**, - **Manipulation** by others (external forester, political peasant leader within FA)
Ex-Secretary of SRNyMA	*Regular* - New president (AR): leadership **does not have the sympathy of all the communities** of the region - Highest forest production potential in the state, the best road infrastructure, ample experience in forestry, and closeness to Durango and the pacific - Ability to reach internal agreements: regular; because of the **internal division** - Ability to develop projects: regular; being the region with the highest productivity, the government brings projects with the certainty that they will be successful, but there is little willingness on behalf of communities to contribute (financially) to those projects **(multiple/shared leadership: FA-community)**. - **Ability to build external connections/networks:** good; they already have some agreements with government agencies, though they have rejected some proposals for long-term proposals for collaborating in commercialization with private landowners - Poor vision of the future

A3.3. Current Leadership Evaluation by Communities in FA-2

Community (N=9)	***Evaluation by Community Leadership***	***Evaluation by Community Assembly/others***
1	*Very Good* - President is a professional (in the technical sense) and his vocation is forestry; others in the *Comisariado* are also professionals (**education)** - Has always been fighting for peasant causes (**commitment to issues)** - **Serious** person - "Outstanding job" - Combined with the leadership at community level and of timber entrepreneur (**multiple/shared leadership)**	NA
2	*Very Good* - President has channeled many benefits (**gestión)** - President is a professional, a forester (Treasurer also professional) (**education, knowledge)** - **Honest** and **law-abiding** - He is well-received in government agencies (**networks)** - It doesn't depend on the FA's leadership but on the communities' *Comisariados* who sometimes distance themselves from the FA because they don't like its governing board (**shared leadership: FA-community)**	*Good* - Above all in the **financial and administrative transparency** - So good that he was reelected - But there is a **need for more communication** - In the past year the leadership only came for political campaign purposes (**use for personal political benefit)** - President – has **charisma and knowledge** - Has contacts (**networks)** with many people, with all the government agencies - **Carries it well** (*se desarrolla bien*) - Forestry service director: In the beginning a little slow, maybe it was his first job opportunity, but over time he has gotten a hold of it. He channels good supports, this year CONAFOR supported them substantially.
3	*Good* - Many projects were done with him, more than on previous	NA - Main communication is between the community's *Comisariado* and the

	occasions. (***gestión***)	FA forester (**multiple/shared leadership**). President did communicate with the *comisariado* for the FA's offices and helped them with obtaining resources for eco-tourism project in municipal rural development office (***gestión***)
4	*Regular* - They don't get the government supports they apply to, only 1/3 (**lack of gestión)** - There is **no information** from the leadership about what they're doing and why they're not receiving supports - If they would do their job properly, much more would be achieved. - Some communities go one way and others go another, precisely because there is insufficient information (**lack of shared leadership: FA-community**) - They are engaged (**effort)** and have good relations with the government (**networks)**, - But **too passive/lacking activity/" "too slow".** - **Honest and trustworthy**	*Good* - Forester responds promptly whenever they need anything (**effort/quickness)** - **Good connections** to government agencies - They are very "**active**" and put a lot of **effort,** they never make a face - **Trustworthy**
5	*Good* - Community CV: He has helped them, even went to get pine seedlings and brought them to the community, he was good to them (*se portó bien*). (**effort, good treatment)** - The problem is the people don't cooperate, don't participate; not everything can be done by the leaders (**multiple/shared leadership: FA-community**) *Poor* - Community President: there is a need for a leader who can be sensible, who can lead and know	*Regular-Good* - Comm. Member: He puts **effort** into it - Ex-Pres. Comisariado: Regular because they only focused on forestry and nothing more. - He is **transparent, honest, and equitable** - Ex-Secetary: Interest (**effort**) in obtaining the most benefit for the member communities - Forestry services have worked well through the are missing a bit of interaction with communities (**lack of presence**) because not everyone has the same vision of conservation and some people do want to cut

	communities' needs. (**lack of sensibility, lack of knowledge)** - The only *use* the FA's name (**use for personal political benefit**). - There has NOT (emphatic) been good leadership. - Sometimes he thinks the ones who battle for the FA's presidency only do it to say they are the presidents and use them (*manejarlo*) for their own benefit, without vision or projects, which is what he sees. - The FA has been sustained by the foresters. **(multiple/shared leadership: Forester)** ** Note the different evaluations of leadership within the same *Comisariado*	timber in their community.
6	*Good* - President and CV**: "Much capacity"**, "**Very active**", he **puts much effort** into everything. "**Very efficient**". - **Knowledgeable and well informed** about government support programs *Regular* - Treasurer: 60% - he was good on some things but for the rest he was a politician, to get votes for the governor (**personal political benefit**). - He had **education** and **good communication skills**.	NA
7	*Good* - Has **good character** and is **treatable** because he knows how to manage his temper and tolerate things. - **Very easy to control** and **docile** (*mandable*) - He was **dedicated (effort)** to the	*Regular* - "Regular" according to some, "not very good" according to others. - Ex-comi: "Good", brought 500 kg of subsidized oat seeds last year (***gestión***), together with local councilmember (**multiple/shared leadership: FA-local**

	Union's work – he obtained supports for things like the new office building (in construction) so that communities would have to contribute the least possible - He is a **professional** and therefore had **good communication** skills. - He was in Durango everyday (**easy to contact/find**).[130] - He was the best asset the Union had. - But, he did not visit the community (**lack of presence)**	**councilmember**). The problem is that the *comisariados* don't tell the FA the supports they need (**multiple leadership/shared leadership**: **FA-community**). - Another: Sometimes they offer supports and people don't want to work, e.g. recent soil conservation project (too little money). - Ex-Comisariado #2: But it's also the FA's fault. - Another: The FA should go into the agencies and lobby for supports
8	*Good-Very good* - He has **training, education, knowledge** - He supports them in everything, sometimes even with a phone call to pass on a message to someone. (**effort, *gestión*)**	*Good* - Ex-Comi: When he was *Comisariado* he saw that they put **effort** into it (*le echaron ganas*) - Assembly: The *ejido* also needs to be more involved. "He who doesn't speak, God doesn't hear." (**multiple/shared leadership: FA-community**) - **Lack of presence** according to some
9	*Poor* - There were no benefits (**lack of *gestión***). The community begged them to help obtain supports for flooring and roofing materials but they never helped. - The President would get the food bags (*dispensas*) but he would not distribute them. - All the benefits went to timber entrepreneur - The President should be active in all of the government's activities to obtain information about programs and then inform the communities about these	*Good* Ex-Comisariado #1: - Good work (**effort**) - Good representation - Good management of resources, though they need more - Not enough information because the community doesn't go to the meetings; the community is the one who is at fault for not remaining close to the Union (**lack of multiple/shared leadership: FA-community)** Ex-Comisariado #2: - "A" grade - They do ***gestión***, they president "moved well" ("*se meneaba bien*" **effort)** - Good rapport with people

[130] Contrast with the case of FA-4 where some people complained that because the president did not live in the city that most community leaders are close to, it was hard to communicate with him.

		(**legitimacy**) - The only thing that's missing is that the *Comisariados* approach him, it's impossible that he can approach them. "If the *Comisariado* doesn't approach [the president] there will not be anything." The community is full of envy, they don't work and don't let others work, and your morale gets low like that - In the **forestry services** the foresters need to do their job faster, they are "**too slow**"
10	NA	NA

A3.4 Current Leadership Evaluation by External Observers in FA-2

External observer (N = 5)	***Evaluation***
Forestry director UCODEFO-X from region	NA
Private Forester of one community in region	NA
SRNyMA official	*Good* - President has a lot of presence with the government agencies **(networks),** all the benefits in the region have come from his leadership and that of the timber entrepreneur. (**gestión)** - Communities and private properties have joined forces - New president is **"hardworking"** but has **less experience and less presence**, is an emerging leader
CONAFOR official	*Good* - 75%
CONAFOR official in charge of ARS associations	*Good* - Vision of growth and development towards the future - Capacity to reach internal agreements: regular - Capacity to develop projects: regular - **Capacity to make external connections: good** - Need updating and elaboration of internal governance documents are needed (e.g. bylaws)
President of state foresters guild	*Good* - **Participation in regional politics** (CNC regional peasant committee), professional (forester) (**education)** - Has **empathy** (**legitimacy)** with all the members of the FA and the main regional and state leaders (**networks)** - **Capacity to reach internal agreements: very good** - Capacity to develop projects: regular - Capacity to make external connections: regular - Weakness: Need to dedicate time to self-employment (farmer and businessman) to sustain himself.
Ex-Secretary SRNyMA	*Very Good* - Together with the timber entrepreneur the president has channeled some important projects for the region's producers, such as ecotourism, housing, electricity, and road paving (***gestión,*** **multiple/shared leadership: FA-timber entrepreneur**)

	- The productive potential of the forests is lower than in the other regions but there is good social organization and good coordination, they have experience in management of government resources (**multiple/shared leadership: FA-community**), good infrastructure and good location - **Capacity to reach internal agreements: very good;** the **experience** of the president and the timber entrepreneur have opened spaces of negotiation with different government agencies benefitting the region's communities. - **Capacity to develop projects: very good;** in the last few years several projects have promoted self-management (*auto-gestión*), with communities making the required (financial) contributions (**multiple/shared leadership: FA-community)** - **Capacity to make external connections: very good**; Has carried out various agreements with federal, state and municipal governments as well as with individuals.

A3.5 Current Leadership Evaluation by Communities in FA-3

Community (N=11)	***Evaluation by Community Leadership***	***Evaluation by Community Assembly/others***
1	*Good* - "More or less, good". - They have been **"*gestores*" (gestión/management)** i.e. **have obtained many supports** for the FA and the communities. They are the ones who receive the most supports in the state. In Proarbol 50% of supports go to this region.	NA
2	*Very good* - The leadership's role is "to be knocking on doors (***gestión*/management**) to look for resources, elaborate projects." - The **ability** of the Union **to remain united** is due to the "good leaders" they've had, mainly the President and forester. - They've been **"strict"** and have known how to **manage** the organization. - However, the President responds to the vice-president. "The one who is the boss is [the forester]. [The president] is like the wife of the congressman in the soap opera –an ornament." (**multiple/shared leadership: forester)**	*Regular* - #1 (Ex-Comi): Fifteen years as president "but where are the advances?" There is no visible work. That is where the **disinterest** (**gestión/lack of)** is shown - #2 (community member): "good leaders" because they have been in the organization **many years** and it seems that it is **becoming stronger**. But it has not been the governing board (president, etc.), those have NOT been good leaders, they **'don't get involved'**. All that has been achieved is because of the forester (Mr. S). The FA depends on the forester **(multiple/shared leadership: forester)** - #3 (ex-Secretary): He doesn't know who the FA's leader is. Before they put a leader but he thinks the only one that is leader now is the forester, who is the one **handling all the supports** (programs). A good leader should channel all the supports for everyone, but what has happened is that the forester manages all the supports and takes away a good percentage [20-25%], which

		should be for the *comisariados* **(use for personal economic profit)** - #4 (ex-Treasurer): "Good". The forester was the leader of the paving of the region's main road and **always sought for a way in which "all could contribute"**. - #5: **Honest and straight**. Does things for the **collective good rather than personal benefit**
3	NA	*Poor* - The FA exists to be united and to help in the **commercialization and to obtain better prices**, but **they don't help in that**
4	*Poor* - They **don't receive many supports** - **"Somewhat lazy/slacker (*flojón*)"** - The President has never been there in a community meeting, only in the FA meetings (**no presence**) - He thinks that now it's a different president [shows lack of knowledge, probably due to the lack of presence of the president in the community and that the community has more relationship to the forestry service personnel.] - But they also haven't approach the FA a lot (**multiple/shared leadership: FA-community**).	*Good* - #1: Very **attentive and servicial** - #3: "Has **worked well**" - Several: But, **no presence** – has not gone in the last year, when they ask for someone to go they send the foresters
5	*Good* - "Good", because many communities participate (**multiple/shared leadership: FA-community**), e.g. the road committee did much for the paving of the San Miguel de Cruces road, and because Nati and Ing. Soto are in that committee, this **was achieved.** - **Honest person** and strives for **transparency to "look good"** (*quedar bien*)	NA

	- Grade: "Regular" [here we see regular means good]. He **could put more effort into it.** Sometimes a person has two projects and he **has to leave one of them unattended** to attend the other [because he is Regidor]. But **the intentions are there.**	
6	NA	*Very good* - Focus group: Forester is a **very good *gestor* (gestión/management) with the government agencies**, and they have the president (**multiple/shared leadership: president-forester**) - Ex-Secretary of FA: "[the governing board]…they are good because they know before everyone else the needs of the association and since they are in the governing board, they know the supports (programs) available." (**information and knowledge of needs and programs**). - **Good communication** with the *comisariados* to do things, for reforestations, etc., and if they cannot do the reforestation in one area then they do it in another (**negotiation/accommodation**)
7	*Regular* - **"Good members (*elementos*)"** like the president who at mid-day or mid-night are there to give a hand[131] (**effort/attention**). Leadership is "strong" - (separate conversation, in private): President owes him 30,000 MXN pesos from two timber orders that he took without telling. President is "**very nice but very shameless**" - President is **"a little of a liar"** -	*Good* Several (assembly): president "is **almost an *ejidatario*"** there, he is a "**very good person**".

[131] This was said in front of the FA president.

8	NA	*Very poor* - #1: 6/10 rating - #2-#4: President has not visited them (**no presence**). One respondent just learned then who the president is. - #4: Only came for his political campaign for regidor **(use for personal political benefit)**. - #5: 0/10 rating - #6: 2/10 rating - #7: President should pay more attention in asking for prices (of basic goods) to be lowered. And he **has used the FA (use for personal political benefit)** because first he was síndico and now regidor and that was because of the support of the members, so he should have more presence (**lack of reciprocity/no presence**). - **#7:** The elected leadership only provides their signature, the forester decides (**multiple/shared leadership: forester)** - #8: President, Secretary, treasurer, they all do what the forester says, They should "grab the bull by the horns" and separate the two - #9: He had never seen the president until he came to bring *dispensas* for his political campaign **(use for personal political benefit)**.
9	*Good* - Has gotten involved more or less in what is his function, which is ***management* (*gestión*),** maybe with some deficiencies. He is more focused on the *social* (political) part - **meetings, going to government agencies** - Could improve in speaking only on behalf of the organization, not mixed with others, not "managed" by others, that "the ideas would be	NA

	his own" (**external interference)** [I think he refers to the PRI here].	
10	*Very good* - This is the FA that has the best way to **manage** things, the **best relations** to everything, the most **movement (gestión, effort)** in terms of **communication and work**.	NA
11*	*Very poor* - President did nothing for them, never talked to them to say he had gotten some benefit for them (**lack of *gestión***). He doesn't remember anything that he did as President. Yesterday he heard the President say that he knew about some programs because he was the Union president. Sometimes the forester supported them (**multiple/shared leadership: forester)**.	*Very poor* #1 (Ex-Comi): Natividad did nothing for them (**lack of *gestión***), did not visit the community (**no presence**), but he didn't go to Natividad either (**multiple leadership: FA-community)**. #2 (Ex-Comi): Natividad was in charge of the electrification issue (***gestión*/lack of**) but he (respondent) **didn't see much movement**. There were no other *gestiones.* Only now in his political campaign (for *regidor*) did he bring food bags (**use for personal political benefit)**.

** No longer a member of FA-3*

A3.6. Current Leadership Evaluation by External Observers in FA-3

External observer (N=9)	***Evaluation***
Forester for a community in the region	*Poor* - **Lack of presence** - The president and forester have done some **tricks** *(trampas)* and that is why they don't go to the communities. - The president has problems in several communities because he buys timber and then doesn't pay up, and then he disappears, doesn't go to those communities anymore (**financial mismanagement, use for personal economic benefit).**
Forester in the region	*Good* - Close to the communities (**presence**), which allows him to have **knowledge** of their problems and needs - **Participation in decision-making bodies**, which allows him to present proposals in favor of his region - **Capacity to reach internal agreements**: very good; the agreements taken in the assembly are clear and information about their implementation is provided **Capacity to develop projects:** very good; "there is a multi-disciplinary technical team that supports the formulation, evaluation and execution of projects that benefit the organization" (**gestión**) - **Capacity to make external connections:** very good; he is part of the state councils and committees related to the forest sector, and has a voice and vote in them - Forester **"gets along with everyone"** and is **very well connected to CONAFOR**. Everyone **respects** him as a good forester - Forester controls the communities under threat (*"mafiados"*) (**authoritarian/domineering**). - But he is a **politician**, he's in the CNC and PRI and has sought political positions - The same as the FA president, who is there in a **"political position"**
Forester in the region	*Very good* - Always looking out for people and the interests of the organization (**effort)** - **Capacity to reach internal agreements:** very good - **Capacity to develop projects:** very good; they always channel many resources (***gestión*)** - **Capacity to make external connections:** very good; have very good relationship to government agencies and know about the programs - But has too much time in front of the organization; it's healthy

	to change the president (**perpetuation)**
SRNyMA official	*Good* - The forester has been able to lead the region very well **(multiple/shared leadership: forester)** - Forester has a **good reputation** in terms of his projects. - Very **strict** in the application of his projects - **Stability/continuity** of leaders (forester and president) - Strong participation from members **(multiple/shared leadership: FA-community)**
SRNyMA official	*Good* - The forester is from the region, the president of the FA has been there a long time (**experience)**. - Some argue that they have not done a good job but they have sustained good organization and good forest management. **(gestión, good outcomes)** - They have very good things. The social and technical (forestry) aspects are very integrated, they are both leaders. **(multiple/shared leadership: forester**)
CONAFOR official	*Very good* - 95%
CONAFOR official in charge of ARS associations	*Good* - Solidarity in participation of the members **(multiple/shared leadership: FA-community)** through the direction of their president, and a vision of growth and development at the regional level. - **Capacity to reach internal agreements:** high - Capacity to develop projects: regular - **Capacity to make external connections:** high - Ned to update internal governance arrangements to give more **transparency and management (weak)** of the process of internal organization. - **Lack of rotation of leadership**
President of state foresters guild	*Regular* - **Participation in regional politics** (regidor, síndico municipal) - **Hard-working** - Respected/well-perceived by members **(legitimacy)** - **Knowledge of the region** and its members and problems - **Capacity to reach internal agreements**: good - Capacity to develop projects: regular - Capacity to make external connections: regular - **Little personal initiative** - Too much **dependency on the foresters and little authority or power in decision-making (multiple/shared leadership: forester)** - Inability to unite the whole region

	-
Ex-Secretary SRNyMA	*Good* - Well-perceived (**legitimacy**) by members and has good relation to forester who is now state-level official, which has facilitated many benefits to the region - Good productive potential and a personalized management (***gestión***) in government agencies by the state's Secretary of Natural Resources - **Capacity to reach internal agreements: good;** they have the support of the state's Secretary of Natural Resources, who is also the cousin of the current municipal president. Communities recognize the advantage this provides to channel funds - Capacity to develop projects: regular; the complacency of some community leaderships has led to a tendency to not want to contribute financially for projects - **Capacity to make external connections**: good; They have external advice from government officials and timber entrepreneurs - Problems: decisions not made by actual elected leaders but by others (forester and timber entrepreneur **lack of shared leadership**)

A3.7 Current Leadership Evaluation by Communities in FA-4

Community (N=9)	Evaluation by Community Leadership (*Comisariado*)	Evaluation by Community Assembly/Other members
1	*Very good* - President now (contrast to previous) is **"very active", puts a lot of effort into it** - Obtains a lot of resources (***gestión*/management**). They will surely obtain good benefits from him. - Respect to him (**respected**) - BUT there is a **lack of resources**	*Good* - #1: "Regular", - #2: "Good" - Various: Consensus - He has always been "**at our service**" - #3: "But only that", says another - #4: The problem is not the FA but the **lack of compliance from the community**. The President offers his help and supports but if it involves costs (investments) to the community, they don't want it– for instance the president offered the road-fixing equipment but they didn't want to invest the $200 pesos per community member that was required to operate it. (**multiple/shared leadership: FA-community**).
2	*Good* - Have done a good job, that is why it hasn't dissolved like the previous ejido union did **(maintain unity)** - President is **very well prepared**, has a lot of **experience**, has been president of his community's *comisariado* several times	*Regular* - #1: President has not come here to give information (**no presence**). - #2: President has **much knowledge** about the forest and peasant issues, but **he is alone,** the people around him don't know. **(multiple/shared leadership within governing board).** Leadership change was political, as stepping stone to municipal presidency (use for **personal political benefit)**
3	NA	*Good* - The president is someone who **likes that things go the best they can** and who **"puts effort into it"**, it's a bit better than before. - But there is a longstanding problem with payment of membership dues and because of that the leadership cannot do much

		because there is not enough money (**multiple/shared leadership: FA-community, lack of resources**)
4	NA	*Regular* - He **puts effort into it, is "very active"** - But he doesn't have much of a way of operating properly because he doesn't live in the city where all the communities are in - **Lacks contact/communication (presence) with *comisariados*.** He should be in the city at least every 1-2 weeks with the community leaders. "Needs to *make people see,* inform about the supports". - The first thing the president wanted to do was to "clear up finances", but he should forget that past gossip and get to work - President does not get along with the forester, who was one of the founders of the FA, and now the forester is resentful (**multiple/shared leadership: forester**)
5	*Poor* - They're all the same, maybe they go in and say they will put effort, but there are no resources (**lack of resources**)–the current has not gotten involved in the road issue (**lack of *gestión***), maybe because he is from another city and is the large city not so much (**unequal benefit**). - **Lack of resources**, maybe **lack of time** because they have to work on other activities to earn money	*Good* - "Good" - The leadership has tried to move the FA forward, they have maintained themselves - He has **"abilities, capacities"** - BUT they have struggled with membership dues (**lack of resources, multiple/shared leadership**) - Needs more presence (**no presence**) in the communities to give more information about the FA benefits.
6	*Good* - Hasn't been there long but "more or less" (good) so far - He **explains** things very well because they find out about many	NA

	projects on time, before they used to find out too late **(information, transparency)** - He is **very involved in many issues (connections)**, e.g. the livestock/cattlement association - Personal characteristics: **Very good character**, **patient,** explains things **without getting altered,** that's very important in a leader. And then he doesn't tell lies (**honest/truthful)**. - He is a **"very good person"** - Even before this he was **visiting communities** to help them improve, he would **inform them** about projects. - "Good" – have gotten projects (***gestión*)**	
7	*Good* - They're more organized, "**more active**" ("*más movidos*"). - **Good people** - Have been **working well**, they are **transparent**	*Good* - **Good person** and puts **effort** into it, the previous president also put effort, but this one more because "he is more studied" (**education/knowledge)** - He **succeeds** (*"sale adelante"*)
8	*Good* - Have been **active** (*se han movido bien*), instead of desisting they **"put effort into it"** ("*le echan ganas*"). - Has known the president for a long time and he is very **hard-working and responsible**, a "good rooster". Also the previous ones. - Everything that is agreed upon in the meetings he complies with **(fulfills agreements)** and does it right.	NA
9	NA	*Good* - Good leader, he is **"active"**
10	NA - Neither the current nor the past presidents have been to the community.	NA

11	NA - Knows the president from many years of seeing him and then he got closer when he was campaigning (for municipal president candidacy). He wouldn't know if he is bad or good leader because **he hasn't asked him for anything.** He didn't know who the president was.	NA
12	NA	NA
13	NA	NA

A3.8. Current Leadership Evaluation by External Observers in FA-4

External observer (N=6)	***Evaluation***
Regional forester (ex-UCODEFO director)	*Good* - Has much capacity for ***gestión*** and he likes politics - He dedicates sufficient **time** to the position - **Capacity to reach internal agreements**: good - **Capacity to develop projects**: regular - **Capacity to make external connections**: very good - But sometimes he is too **domineering/overbearing** (*impositivo*), and while he has capacity to make connections with agencies, he always wants to impose his style and sometimes his relationships do not bear fruit, - He has a very defined political tendency towards a party and he mixes politics an work a lot (**use for personal political benefit)** this is not healthy for a producers organization where there are multiple political currents. - They make their **decisions without consulting**. He has told the current governing board that the road repair equipment should be left with him and it should be him who lends it to communities, but they don't listen. "**If there are many making a decision, no one makes it"**
CONAFOR oficial	*Good* - 75%
CONAFOR official in charge of ARS associations	*Good* - Good leadership from the president and a medium and long-term vision of growth for the organization - **Capacity to reach internal agreements**: very good - **Capacity to develop projects**: good - **Capacity to make external connections**: good - There is apathy and lack of full commitment from the members in financial contributions and decision-making (**multiple/shared leadership: FA-community)**
SRNyMA official	*Very good* - A **lot of effort** - He is one of the leaders who has had **the most presence in the region** for a long time. - In the area of influence of the president they are **working a lot with a lot of enthusiasm** - The problem there is the **division in several regions (2-3)** which makes coordination difficult, and the fact that it is one of the most disorganized regions, the formation of work groups started there (**multiple/shared leadership: FA-community)**
President of state foresters	*Regular*

guild	- Insistent **(persistence)**, constant ***gestión*** and program applications - Knows the region - Knows the agencies and programs (**knowledge)** - Capacity to reach internal agreement: Regular - Capacity to develop projects: Regular - Capacity to develop external connection: Regular - Problems: **protagonist** leader, privilege personal interests over the organization's use of the position for personal and family benefit (**use for personal political benefit)**
Ex-Secretary of SRNyMA	*Regular* - "[The President] does not have the support and sympathy of all the *silvicultores* in that region, has an interest in escalating political positions for himself and also insists on promoting his sons into the different local political and administrative structures." (**use for personal political benefit)** - Capacity to reach internal agreements: Regular. **Lack of trust** in the current president; doubts that his activities will benefit the organization - Capacity to develop projects: Regular. Poor organization of the members, poor willingness and ability to contribute financially to participate in projects. (**lack of resources, multiple/shared leadership: FA-community**) - Capacity to make external connections/networks: regular. His leadership is not solid. Also, due to the fact that the region is **one of the farthest away** from the state capital, he does not have a strong influence on the state government. - This is one of the regions that is most affected by illegal logging and organized crime (drug cartels).

APPENDIX 4. Evaluations of Strengths and Weaknesses in the four FAs

A4.1. Main strengths and weaknesses identified by community in FA-1

Community (N=15)	*Strengths*	*Weaknesses*
1	- Resource channeling - Good relations with government	- Bad leadership and politicking
2	-	- Insufficient financial resources - Poor attendance to meetings - Lack of organization; insufficient "strictness" regarding attendance and membership payments - Poor leadership (present and past); insufficient leadership projection - Prejudice against small and poor communities (unequal benefit distribution) - Financial mismanagement - Discontent with the change from union (UNECOF) to association (ARS) (internal divisions)
3	-	- Poor leadership (current) - Poor attendance to meetings - Political meddling - Lack of unity
4	-	- Internal divisions/ Lack of unity; some communities not supportive - Lack of market (price) regulation; communities compete between them - Financial mismanagement in previous administration
5	-	- Periods for each executive committee are too short - Lack of continuity from one *Comisariado* to the next; some projects are not completed - Poor attendance to meetings - Lack of information and knowledge at the community level
6	-	- Insufficient financial resources, debts - Membership fee is too small - Lack of unity; those who lose try to boycott the association - Lack of presence of the ARS president in the community

		- Community members don't trust their representatives ("no one is a prophet in his own land") - Community members are distant from the ARS, they don't take it into account (lack of interest/participation)
7	- "Lot of strength in government agencies" (good relations with government)	- Timber market (price too low) - Insufficient financial resources; lack of members' contributions and diminished government resources - Economic crisis which affected membership contributions
8	- Good financial management, transparent	- Timber market (price too low) - Prejudice against small and poor communities (unequal benefit distribution)
9	-	- Lack of unity/members support; - Non-payment of membership dues - Insufficient financial resources
10	-	- Insufficient financial resources - Prejudice against small and poor communities (unequal benefit distribution) - Financial mismanagement in previous administration (Mr. B)
11	- Good relations with government, although before they would take it into account more (less political power now)	- Insufficient financial resources; some members do not want to contribute (membership dues) - Lack of unity/Internal divisions; losers distance themselves - Lack of information/knowledge at the community level
12	-	- Lack of organization; inconsistency of members' contributions, lack of a work plan - Lack of consistent contributions of membership dues - Lack of price regulation, envy and competition between communities - Political meddling - Lack of experience - Lack of information-sharing between communities

13	-	- Lack of unity; those who lost do not support the association - Insufficient financial resources; large debts from Social Security and Treasury and diminished support from CONAFOR (harder to obtain them)
14	-	- Weak leadership - Politicking - lack of member contributions and internal divisions/lack of unity
15	-	- Politicking: used as political springboard - Prejudice against small and poor communities (unequal benefit distribution)

Other actors	***Strengths***	***Weaknesses***
Current FA leadership	-	- Lack of unity; personal and political interests, rather than working for the common good - Insufficient consolidation - Insufficient financial resources - Insufficient information/ knowledge about each community's needs- they know regional needs but not the individual community ones - Lack of joint commercialization - Poor participation/attendance levels in meetings - Members 'do not let themselves be helped' - Previous financial mismanagement, which leads to lack of trust and members' unwillingness to invest - Insufficient transfer of information about the ARS by the communities' *comisariados*

President FA-1	-	- Lack of unity/internal divisions - Unwillingness from members to contribute for regional projects (*reparto* culture) - Lack of price regulation - Timber market
Ex-President FA-1	-	- Insufficient resources - Poor/inconsistent leadership (past) - Lack of member commitment/interest/participation - Lack of market (price) regulation
Small private landowner	-	- Insufficient consolidation - Lack of self-financing and employment mechanisms - Poor/inconsistent leadership (past)
Region's foresters		
1	-	- Insufficient financial resources - Insufficient human resources, particularly technical advisory - Political meddling
2	- Good relations of leaders with government agencies	- Insufficient consolidation - Insufficient technical advisory - need full-time multidisciplinary technical team - Insufficient relations with some actors such as timber corporations outside Durango and FIRA (govt.'s Rural Financing agency)
3	-	- Poor leadership (present and past)
4	-	- Insufficient consolidation - Insufficient financial resources - Previous mismanagement of funds, which leads to lack of trust and members' unwillingness to invest - Discontent with the change from union (UNECOF) to association (ARS) - Political meddling

A4.2. Main strengths and weaknesses identified by community in FA-2

Community (N=12)	*Strengths*	*Weaknesses*
1	- The leadership is the best part - Equipment (D8 bulldozer) for road repair - Infrstructure – office space with everything they need (computers, photocopying machine) - Forestry services - Very efficient, they do things quickly and kindly (even free photocopies)	- There were some complaints by one community leader about lack of benefits to his community [unequal benefit distribution] - Lack of supports for agriculture and livestock *Ex. Pres. Com.* - UMA Project: Lack of interest or perhaps lack of personnel
2*	- Union of 12 communities, which gives it strength (unity) - All are from the same municipality, and thus resource channeling is done with only one municipal government, as opposed to other FAs which have to deal with multiple local governments - They have several large, important communities in their membership, which represent a lot of people, and it means that elected government officials should take them into account	- Politics, because the FA is very identified with one political party [PRI] and in the communities there are always people from both parties [PRI and PAN], and so in election periods this division surfaces, after that it doesn't. [this coincides with what the leaders of FA-1 told me once] - Not enough supports on one of the sub-regions because the timber entrepreneur is more focused on the sub-region where he is
3	- Good relations with government - Forestry services - Communication, they have a radio and it is easy to contact the FA reps. - Union = strength	- Meetings: need to do them more often, 2-3 times a year, there was an agreement to do them twice a year but it has not been followed - On previous occasions they elected people who were not very good. They have to pay more attention. When there is a change in governing board, they should elect someone who responds, not anyone. (leadership transitions) - Not divide ourselves, be more united (internal divisions) - Lack of sufficient resources: More resources are needed, perhaps get more communities to join the Union

		Ex-Pres. Coms. - Lack of processing capacity: The problems in communities and FAs is that they don't have industries (timber processing, e.g. sawmills). The problems of poverty come from there, that's why peasants are poor. - Much apathy (lack of participation) - The leader did not do enough to unite, to reach out to those who were more distant (leadership) - Political trampoline/politicking
4	- "Unity", things are done together, they get along well - Good communication allows them to resolve any issues that may come up - Initiative to do things	*Pres. Com.* - Not enough government supports *General Assembly* - Very slow (forestry services – talking about the forest study for the new forest management plan), they should do more temporary hires to peed up work - Advice is only given to the community governing board, many are not informed about the FA (lack of information) - They let the FSC certification expire because they didn't want to comply with the deadlines
5	- Organizes all the communities (**unity**), and "once organized it's a big advantage, because that way things get done. If they were not in the FA they wouldn't, each community would be on its own, but with the FA they do it together and the president leads." -	*Pres. Com.* - None. "everything is well", except when they are in the process of electing a new leadership, many times its hard because of lack of capacity and knowledge, sometimes they want to elect someone who doesn't have knowledge and training. *Ex-Pres. Com.* - Lack of sufficient resources. They still haven't finished the office building because of this

		Community member - Capture of eco-tourism project by timber entrepreneur
6	- Resource channeling - Forestry services	- Forestry services (lack of initiative, motivation), need more personnel - Lack of sufficient resources, need more communities to join - Decreasing timber volumes, from 70,000 m3 to 30,000, the thing that is sustaining the FA is CONAFOR programs like soil restoration - Lack of industrial timber processing equipment - Cacique politics by regional timber entrepreneur
7	- Leadership, which is profesional - The majority of applications have been approved, this has marched very well (resource channeling) - Union = strength	*Pres. Com.* - "The *contra* (opposition group for internal elections) that we have right now" 2-3 communities... (internal division) - There are also problems in the communities. For instance in his community the opposition group tried to prevent him from being elected as community representative in the Union but he won although they also elected two from the opposition group *Ex-Pres. Com.:* - Resource channeling: Sometimes the communities get angry because they don't receive the services/supports they expected. They feel a bit behind in their community, like the Union's ugly duck, all the supports go to a few other communities [to the community of the president; perception about unequal benefit distribution] - Meetings: they are too far apart from each other; they should be

		every month or at least every 2-3 months. There had not been a meeting for the last 2 years - Human capital: Not enough personnel and resources. The work gets delayed as a result, too slow on the new study for the new management plan. - The ideals of some community leaders who sometimes do not agree with a decision from the FA's assembly (divisions)
8	- Unity, strong, it gets attention [from government officials] - Good financial administration, they have had to contribute very little because the FA has other sources to sustain itself - Very active and there is a lot of trust	- Lack of information and communication - Internal divisions, some communities pull to one side and others to another, because there is no information [from the union's leadership] - They don't have an office, they are in the process of building it
9	- Forestry services - Organized and with good leadership. "Supports for the social [peasant/rural] sector only come to those organized".	- Lack of communication and information - Lack of capacity-building - Lack of leadership - Lack of political autonomy/politicking: too tied to one party (PRI)
10*	*Pres. Com.* - None, they only provide forestry services but it's the same as any private forestry services [this community does not receive the services] *Ex-Pres. Com.* - Union = strength	- Some participate and others do not (lack of participation). The majority do not go to the community meetings, that's why they don't know what is happening in the association - Needs more resources - Forestry services - All the benefits go to region's main timber entrepreneur
11*	- Resource channeling	- Lack of participation from communities: Communities need to support the FA more, sometimes we fail in this, the FA organizes a meeting and we don't go (social capital/participation).
12	NA	- Used to operate well but now not so much, lacks effort

		- Not enough meetings, used to have them 3 times a year and now only once a year - They don't visit communities (lack of presence) - Resource channeling: they didn't get the program they applied to (environmental services) and got disheartened and then stopped participating, and now they changed foresters because it's less expensive

** Do not receive the FA forestry services*

Other actors	***Strengths***	***Weaknesses***
FA president 2002-2010	- Registered with Treasury and Social Security - Radio communication - Land property with office space (under construction) - Computer equipment - Resources channeled	- Political groups that emerge as competition - Competition from other FAs, before they were among a few, now there are many
FA-2 forester	- Communities, their members, and their leaders, when there is need they support you - All communities are pretty well *united,* there is no division of sub-groups within the union [contrast with observation during the election] - Good relations with government - Friendly ambience in the workplace	- Too few people (lack of human capital) to service everyone, because of the issue of communities delaying the payment of their memnership dues and service fees –up to 6 years in one case. They need 2-3 additional staff - They have equipped themselves with some computers, programs, though they will need more training in these - They have always been renting an office, now they have the base of their own office building, but they will need more resources (lack of financial capital/resources) to have more equipment and expand their services, and they will need an annual expense plan

A4.3 Main strengths and weaknesses identified, by community in FA-3

Community (N=11)	***Strengths***	***Weaknesses***
1	- Organization, which takes you by your hand to channel resources - Forestry services, forest stock has increased - Well capitalized (physical and financial capital) – pick-up trucks, tree nursery, watchtowers, office, and they combat the fires very quickly - Unity: People reach agreements easily; "For any supports (programs) the Union is the one that makes us worthy (*la que nos hace valer*)"	- Everything has worked more or less well. Sometimes they lack personnel, which is an economic issue (lack resources). - They don't have their own office (they rent)
2	- Good connections to government - Good leadership - Well organized, every day they improve, very open in the administration (unity)	- Representation is weak because it [the governing board] is not assigned resources and so the forester ends up in charge of the representation because he controls the resources - Corruption – forester receives money to change the extraction areas for some members, for instance he benefits his brother by designating as extraction area the location where his brother has contracts to extract the timber (his brother owns a crane). - Marked timber volume is always higher than the extracted volume - Forester buys people who oppose him with money; he also uses markup process to obtain political support – more timber marked in exchange for support - Forester has not allowed people from the community to work in the forestry services – he has fired 3-4 of them - Costs of forestry services -Forestry services are too expensive…But forester refuses to discuss in the community assembly the issue of the forestry service fee

		- The timber corporation is not charged the same as all the other members, and the corporation controls him - Not enough opportunities to be more autonomous, especially in managing their timber extraction documents. Right now the forestry services unit manages everything and communities do not know how to do it because they have not been taught, and when PROFEPA comes communities cannot provide their documents because the forestry services have it. - Forest management: clearcutting - They only do what the forester says; he is authoritarian *Forester's brother* - Third parties who have tried to promote disorganization, they try to convince members to leave the FA, because they don't want the FA to do well (politicking). - Economic: Lack of sufficient resources, many and very strong, but they have been able to overcome them.
3	- Forest management - Supports/Resources - Forest fire controls – towers - Radiocommunication	- Costs of forestry services: among the most expensive in the state - Forest management: clearcutting - Low survival rate of reforestation projects - Roads not repaired despite the fact they pay a road repair quota - Put money for electricity but they never got it back and electricity never came (financial mismanagement) - Leadership - No help in commercialization and improving prices - No help with non-forestry projects
4	- They haven't seen much because they don't approach the FA much - Forestry services - Resources channeled	- None

5	- Forestry services, always willing to help - Good relations with government, very well recognized (environmental compensation projects, good reputation)	- Lack of attention to agriculture and livestock, which is the community's main focus - Markup of trees
6	*Governing board* - Leadership – forester and president (shared), and both are on their side - Organizational strength, they even put in the paperwork for you, you only have to sign *Ex-Leader* - The FA is strong economically, but also politically. That's why they've been able to reach the positions we have. But if we were not strong in the organization and administration, we would not have political strength. The two go hand in hand. "That's why we are screwing the other FAs" We get the most [government] resources in the entire state. This is something we know but we don't say openly. He was first councilmember (*regidor*) in [municipality] seven years ago. [FA President] is 5th councilmember now and he was municipal comptroller. The government asks the FA who to appoint in different positions (good relations with government). - Good communication/ coordination with the community leaders, reforestations are well planned, and if it cannot be done in one place it is done in another.	- None

7	- Leadership - Supports/Resources - Forestry services "among the best" - "Has united a lot of people" (unity)	- Costs of forestry services - Forester applies for projects that the community doesn't need so he can charge 20% (financial mismanagement) - Financial mismanagement by leader (personal debt)
8	- Forestry services - Supports/Resources - No conflicts, they walk together in agreement (unity)	- Costs of forestry services - Political use of FA by president - Financial mismanagement: an ejidataro claims they stole his derecho money
9	- More united (unity) - Fire combat brigades	- Costs of forestry services
10	- Forest management: reforestation, tree markup, forest is growing - Good relations with government - Good financial and physical capital	- None
11	- Forestry services	- Costs of forestry services - Tree mark-up (hollow, damaged)

A4.4. Main strengths and weaknesses identified, by community in FA-4

Community (N=13)	*Strengths*	*Weaknesses*
1	- Resources channeled - Leadership	- Lack of presence of FA (despite the fact that the current oversight council of the FA is a member of the community) - Lack of compliance from the community. The president offers his help and programs but the community does not want to contribute – example of road repairs and capacity-building courses - Lack of organization, not all the communities work/contribute equally
2	- Resources channeled	- Politicking: last election was political, and that's where the problems start; if the FA-4 president had won the municipal presidency bid he would've left the FA without a leadership - Lack of shared leadership - Organizational problems – lack of technical advisory - Lack of information about the FA - Lack of presence/visits to community - Loss of members when another forester formed a parallel FA - All the benefits have gone to one sub-region (unequal distribution of benefits)
3	- Infrastructure (fire towers, road fixing equipment) - Resources channeled	*Pres. Com.* - The problem is collecting membership dues (lack of financial contributions from members); consequently they are struggling because they have insufficient financial capital. - "They don't see the benefits, it's that they don't want to see them." [Politics of evaluation of FA benefits and success.] *Ex-Pres. Com.* - The main problem is the membership

		dues (financial contributions), they never reach 50%, some contribute and others do not. With their governing board it was the same "it has always been the same problem". - From that position the leadership cannot do much because it has no resources (lack of financial capital) - The little that has been achieved is because of government supports - There is a lot of indifference in the community towards the FA because there is a lack of information and they don't see benefits (lack of supports) - Lack of shared leadership in previous governing board *Assembly:* - Not discussed directly but lack of information was evident
4	- Well constituted with its bylaws and documentation (internal instiutions) - Regional Forest Study – CONAFOR will support what is stipulated there - Road repair infrastructure	- Lack of diffusion/information - Lack of presence/visits to communities - Previous *comisariado* in the community did not explain the FA activities properly to the assembly - "They only know the FA because they charge a fee" - Lack of supports for economic projects at the community-level
5	- Resources channeled - Good relations with government	- Lack of financial resources; this affects the leadership and projects - Weak organization because there is a lot of need, everyone owes the FA because there is no money – they prefer to buy necessities rather than pay the FA (lack of financial contributions tied to economic woes) *Ex-FA leader* - One of the main issues during his time was delays in payment of membership quotas. Maybe it wasn't because the community didn't want to pay but because the governing board would use the money for something

		else [mismanagement by comisariados]
6	- Regional Forest Study, first in the country, very important for the communities and for the sale of timber - Resources channeled - Strong internal organization - Unity - Integrated into the Cattle ranchers Union (CNC)	- Lack of information/diffusion – now less because FA president has other jobs and lives farther away (in state capital) - Lack of information from the *comisariado* to the assembly - Not enough meetings of the association - Lack of financial contributions or delays by some members - Last year the FA delayed the payment of the fire combat in their community but at the same time it paid the brigades in other communities despite the fact that their community was up to date with the quota and the others were not (preference to other communities – I think he referred to the community from where the FA president is)
7	*Pres. Com.* - Transparency of financial management and activities in meetings *General assembly* - Resources channeled	*Pres. Com.* - Lack of member compliance with their membership quotas/dues (lack of financial contributions). They have not paid because the company that bought their timber was supposed to pay directly to the forester but it didn't *General assembly* - Not many supports - Lack of information - Lack of presence of the leadership, neither president has ever visited (one said that the current president had visited but only in his political campaign)
8	- Unity = strength - Resources channeled - Collaboration with fire combat - Everything that is agreed upon is complied with, the presidents take care to do things correctly	- Lack of supports for economic projects – community members don't want to invest, they need the money to eat
9	- Resources channeled	- Lack of information about the FA, its

	- Leadership	objectives and support programs available - Lack of presence/visits of FA leaders in the community
10	NA	- Did not discuss directly but the interviewee stated lack of information about the FA and lack of presence of FA leaders
	NA	- Did not discuss directly but the interviewees stated lack of information about the FA and lack of presence of FA leaders
11	- Fire management, including infrastructure - Resources channeled - Leadership	- Lack of presence of previous leaderships - Failure of members to comply with paying the quota (Lack of financial contributions by members). The agreement they took in the FA assembly did not work. The problem started about 3 years ago. They didn't pay the 2009 quota because the FA did not pay the fire combat brigade - Lack of office space and lack of financial capital to pay rent
12	NA	- Did not discuss directly but the interviewees stated lack of information about the FA and lack of presence of FA leaders

Other actors	***Strengths***	***Weaknesses***
UCODEFO forester and FA-4 founder		- The main problem with the *comisariados* is that they never inform their assemblies about the FA - Loss of members when another forester formed a parallel FA
Current ARS president		- Lack of trust to participate in common projects. This comes "from below", from mismanagement in communities –traditionally leaders have sought positions to capture money for themselves– and in peasant orgnizations.

CURRICULUM VITAE

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Fields: Human-environment interactions, institutional analysis, political ecology, sustainability, community-based natural resource management, decentralization, grassroots development, participatory governance, environmental justice, environmental policy and politics

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EDUCATION

2005–2012 *Indiana University-Bloomington*
Doctoral Candidate (dissertation defense: July 6, 2012)
Joint PhD Program in Public Policy and Political Science, School of Public & Environmental Affairs (SPEA) and Political Science Department. Majors: Public Policy, Environmental Policy, Political Theory and Methods (Institutional Analysis)

Dissertation: *Scaling up from the top down and the bottom up: The impacts and governance of inter-community forest associations in in Durango, Mexico*

Dissertation chair: Catherine Tucker (chair), Michael McGinnis, Armando Razo, Burnell Fischer, and Leticia Merino

2004–2005 *University of Cambridge (United Kingdom)*
M. Phil. in Environmental Policy, Department of Land Economy

Master's Thesis: *Evaluating the validity of the Benefit Transfer approach: The case of manatee protection in Florida and Puerto Rico*

1999–2004 *University of Puerto Rico-Río Piedras*
B.S. Magna cum Laude
Majors: Environmental Sciences (College of Natural Sciences) and Geography (College of Social Sciences)

Honors Thesis: *Modeling and simulation of urban sprawl patterns in the San Juan metropolitan area using a System Dynamics approach*

2002–2003 *Complutense University of Madrid*
Faculty of Geography and History (Exchange Program)

FELLOWSHIPS, HONORS AND AWARDS

2012: Dissertation Fellowship, University Graduate School, Indiana University-Bloomington

2011: Honorable Mention, Ford Foundation Doctoral Dissertation Fellowship

2009: Inter-American Foundation (IAF) Grassroots Development Fellowship for Doctoral Dissertation Research

2009: Fulbright-IIE Fellowship (declined, in favor of IAF Fellowship)

2008: European Union's Seventh Framework Program for Research and Technological Development (RTD) Scholarship to attend the 3rd Marie Curie Summer School in Emerging Theories and Methods in Sustainability (THEMES), New University of Lisbon, Portugal

2008: Best Policy Paper Award for "Forest Policy in India and Mexico: From Centralization to Decentralization and Back?" (with P. Kashwan), Political Science Graduate Student Conference, Indiana University-Bloomington

2006: European Union's Sixth Framework Program for RTD Scholarship to attend the 1st Marie Curie THEMES Summer School, Autonomous University of Barcelona, Spain

2005–09: National Science Foundation-Alliance for Graduate Education and the Professoriate (NSF-AGEP) Ph.D. Fellowship

2005: Faculty Award to Outstanding Graduating Student, College of Natural Sciences, University of Puerto Rico-Río Piedras

2004: Truman Scholarship for Graduate Studies, Harry S. Truman Scholarship Foundation

2004: Chancellor's Award for Academic Excellence, University of Puerto Rico-Río Piedras

2002: Committee on Institutional Cooperation Summer Research Opportunities Program (CIC-SROP) Fellowship, Graduate School, University of Illinois at Urbana-Champaign

TEACHING EXPERIENCE

2011 (Fall): **Adjunct Instructor**, School of Public and Environmental Affairs (SPEA), Indiana University-Bloomington.
Course Taught: Sustainable Development in Developing Countries (undergraduate level)

2009 (Fall): **Adjunct Instructor**, School of Environmental Affairs, Metropolitan University (UMET), San Juan, Puerto Rico.
Course Taught: Sustainable Development in Puerto Rico (masters level)

2009 (Fall): **Adjunct Instructor**, School of Social and Human Sciences, Turabo University, Gurabo, Puerto Rico.
Course Taught: Introduction to Statistics (undergraduate level)

2008 (Fall)–
2009(Spring): **Adjunct Instructor**, School of Public and Environmental Affairs (SPEA), Indiana University-Bloomington.
Course Taught: Sustainable Development in Developing Countries (undergraduate level)

RESEARCH EXPERIENCE

2012: Research collaborator, CNH project "Understanding the sustainability of large-scale socio-ecological systems: a meta-analysis" (PI: Michael Cox, Dartmouth College)

Description: Collaborating in the coding of the case of Indonesian forest governance. Participating in the write up of a paper on this case, applying variables drawn from CPR theory to analyze national-level patterns of forest governance. Participating in the write-up of a synthesis paper comparing five different cases (including the Indonesian one) being analyzed in the project.

2010: Dissertation fieldwork in Durango, Mexico, under IAF Dissertation Research Fellowship

2009: Research collaborator, International Forestry Resources ad Institutions (IFRI) research program – Indiana

Description: Participated in the fieldwork for three IFRI sites in Indiana, carrying out interviews and forest measurements. Collaborated in the write-up of the corresponding IFRI reports. Collaborated in the write-up of a summary paper comparing the five Indiana sites over-time (Fleischman et al., 2010).

2007: Research Assistant, International Forestry Resources and Institutions Program (IFRI) & Sustainable Agriculture and Natural Resource Management (SANREM) Collaborative Research Support Program, Indiana University-Bloomington (summer)

Description: Housed at the Social Research Institute (IIS) of the National Autonomous University of Mexico (UNAM). Led a team of researchers that conducted two case studies on community forestry in the states of Oaxaca and Guerrero following the IFRI protocol. Collaborated in a pilot test of SANREM household survey on livelihoods and evaluated its instruments and methodology.

2007: Field Researcher, National Survey of Community-Managed Forests in Mexico Project, University of California-Berkeley (spring)

Description: Carried out a survey of community forestry in 17 forest communities in Durango, Mexico, including interviews with other stakeholders. Evaluated and helped improve the survey instrument. Contributed to data analysis of the results.

2006: Research Assistant, SPEA and Workshop in Political Theory and Policy Analysis, Indiana University-Bloomington

Description: Reviewed IFRI research instruments and methodology and recommended changes to improve its protocol.

2006: Summer Intern, Environment Division, Office of the Trade Representative (USTR), US Department of State, Washington, DC

Description: Researched and wrote reports on the structure and performance of Malaysia's environmental institutions and on various Korean environmental issues for the US teams in the negotiations of free trade agreements with Malaysia and Korea.

2005–2006 Research collaborator, International Forestry Resources ad Institutions (IFRI) research program – Indiana site

PUBLICATIONS

Peer-Reviewed Articles

García-López, G.A. & Arizpe, N. (2010). Participatory processes in the soy conflicts in Paraguay and Argentina. *Ecological Economics, 70*(2), 196-206.

Fleischman, F. D., Boenning, K., García-López, G.A., Mincey, S., Schmitt-Harsh, M., Daedlow, K., Lopez, M.C., Basurto, X., Fischer, B., & Ostrom, E. (2010). Disturbance, response, and persistence in self-organized forested communities: Analysis of robustness and resilience in five communities in southern Indiana. *Ecology and Society, 15*(4), 9 [online]. URL: http://www.ecologyandsociety.org/vol15/iss4/art9/.

Work in progress

Fleischman, F., García-López, G.A., Loken, B. & Villamayor-Tomás, S. (in prep.). Decentralization of the management of forest resources in Indonesia: Changing property rights without altering underlying incentives for deforestation. To be submitted to *Ecology & Society* as part of a special issue on scaling-up of CPR theory.

García-López, G.A. (in prep.). Scaling up from the grassroots and the top-down: The impacts of different types of cross-scale linkages on community forestry in Durango, Mexico.

García-López, G.A. & Antinori, C. (in prep.). Historical transformations in forest commons: The emergence and evolution of inter-community forest associations in Mexico.

García-López, G.A. & Kashwan, P. (in prep.). Reconstituting representation: Decentralziation and recentralization of forest governance in Mexico and India.

García-López, G.A. & Arizpe, N. (in prep.). The socio-economic and ecological impacts of soy production at local and regional scales: Evidence from the Chaco region in northern Argentina.

Reports

Basurto, X., Boenning, K., Daedlow, K., Fleischman, F., Fischer, B., García-López, G.A., Lopez Perez, M.C., Mincey, S., Schmitt, M., Ostrom, E., & Souza, F.K. (2009). *The community and forests of Painted Hills*. International Forestry Resources and Institutions (IFRI) Research Program Report. Bloomington, IN: Workshop in Political Theory and

Policy Analysis, Indiana University-Bloomington.

García-López, G.A. (2007). *La experiencia de manejo comunitario forestal de San Andrés El Salto, Oaxaca.* [*The community forestry experience of San Andrés el Alto, Oaxaca*.] IFRI Report. Mexico City: Instituto de Investigaciones Sociales, National Autonomous University.

Bauer, J., Fischer, B., García-López, G.A., Holahan, R., Kashwan, P., Ostrom, E., & Steed, B.C. (2006). *Revisiting Elvin H.O.M.E. Inc. and the Lothlorien Forest*. IFRI Research Program Report WO6I-36. Bloomington, IN: Workshop in Political Theory and Policy Analysis, Indiana University-Bloomington.

Coleman, E.A., Delgado, J.A., Dennis, E.M., García-López, G.A., Holahan, R.A., Jameson, E., Kashwan, P., & Steed, B.C. (2005). *The Kneadmore Community and its forest in the new millennium: Third IFRI Visit to the Kneadmore Life Community Church in Brown County, Indiana*. IFRI Research Program Report WO51-35. Bloomington, IN: Workshop in Political Theory and Policy Analysis, Indiana University-Bloomington.

Other Publications

García-López, G.A. (2011). Seguridad alimentaria y sustentabilidad en el Caribe [Food security and sustainability in the Caribbean]. In *Encyclopedia of Puerto Rico.* [online] URL: http://enciclopediapr.org. San Juan, PR: Puerto Rico Foundation for the Humanities (FPH)/National Endowment for the Humanities (NEH). (Forthcoming)

García-López, G.A. (2011). Manejo comunitario de recursos naturales en el Caribe [Community-based natural resource management in the Caribbean]. In *Encyclopedia of Puerto Rico.* [online] URL: http://enciclopediapr.org. San Juan, PR: Puerto Rico Foundation for the Humanities (FPH)/National Endowment for the Humanities (NEH). (Forthcoming)

García-López, G.A. (2011, April 26). El valor económico de los recursos naturales [The economic value of natural resources]. *El Nuevo Día*. [online] URL: http://www.elnuevodia.com/columna-valoreconomicodelosrecursosnaturales-950600.html.

García-López, G.A. (2009, November 3). El reto a las ortodoxias económicas [The challenge to economic orthodoxies]. *El Nuevo Día,* p. 50.

PRESENTATIONS

García-López, G.A. & Villamayor-Tomás, S. (2012, April). Expanding collective action theory in common-pool resources: Insights from social movement studies. 70th Midwest Political Science Association (MPSA) Conference, Chicago, IL.

García-López, G.A. (2012, March). Del co-manejo de los recursos naturales a la gobernanza en redes: Experiencias del manejo de bosques en Durango, México. [From co-management to networked governance of natural resources: Experiences of forest management in Durango, Mexico.] Presented at the colloquium of the Social Research Center and the Graduate School of Public Administration, University of Puerto Rico–Rio Piedras, San Juan, PR.

García-López, G.A. (2009, December). The hegemonic development discourse in Puerto Rico. Counter-hegemonies and 'greenwashing' from the sustainability discourse. Paper presented at the Arqpoli Roundtable on Nature, City, Power: Practices and Discourses of Sustainability, Architecture School, Polytechnic University, San Juan, PR.

García-López, G.A. (2009, April). Bringing power back in: Inserting power into the Institutional Analysis and Development (IAD) framework. Paper presented at the 67th MPSA Conference, Chicago, IL.

García-López, G.A. (2009, March). Suburban sprawl and crony capitalism in Puerto Rico: Alternatives for sustainability. Paper presented at the International Public Affairs Association Faculty/Graduate Student Conference, School of Public and Environmental Affairs, Indiana University, Bloomington, IN.

Antinori, C., & García-López, G.A. (2008, July). Cross-scale linkages in common-pool resource management: The evolution of forest associations in the Mexican forest commons. Paper presented at the 12th Biennial Conference of the International Association for the Study of the Commons (IASC), University of Gloucester, Cheltenham, England.

García-López, G.A. & Kashwan, P. (2008, April). Forest policy in Mexico and India: Decentralization, recentralization and back? Paper presented at the 66th MPSA Conference, Chicago, IL.

García-López, G.A. (2007, September). Social-environmental movements and alter-developments in Puerto Rico. Paper presented at the XXVII International Congress of the Latin American Studies Association (LASA), Montreal, Canada.

García-López, G.A. (2007, June). The National Community Forests of Mexico Project: Challenges and Lessons. Presented at the Workshop in Property Rights and Collective Action in Natural Resources with Application to Mexico, University of California-Berkeley and Casa de la Universidad de California en México, Mexico City.

CONSULTING

2012: San Juan Bay Estuary Program (SJBEP), San Juan, Puerto Rico

Description: Revise and update the drafts of all the new actions proposed for the SJBEP Management Plan. Write additional new actions to address gaps in the proposed ones. Coordinate participatory process with stakeholders to discuss the new actions. Track implementation of the existing (approved) actions in the Management Plan and prepare implementation report for public outreach.

2011: SJBEP, San Juan, Puerto Rico

Description: Wrote five new actions for the Management Plan (on climate change impacts on the watershed and adaptation measures; alternative transportation; access to SJBE-related information; establishment of a volunteer program for water quality monitoring; and development of studies about the socioeconomic value of the estuary) for the Conservation and Management Plan of the San Juan Bay Estuary.

VOLUNTEER-BASED COMMUNITY WORK

2011–Present: Administrator and Coordinator, Environmental Education Projects, Proyecto Laguna Corp. – Mariposario Aula Verde (community-based NGO)

Description: Design practice-based environmental education projects for low-income students in Aula Verde, an urban forest and butterfly sanctuary in San Juan, PR that serves as ecological education center. Administer the project and its workforce. Write grants. Represent the organization in conferences and other meetings.

2011–Present: Member, National Environmental Law Association (Asociación Nacional de Derecho Ambiental, ANDA)

Description: Provide free advice and capacity-building to low-income communities and individuals on matters related to environmental law and policy. Currently working with a coastal community in the municipality of Arecibo on issues related to access to the beach, delimitation of the Coastal-Maritime Zone, and protection of coastal ecosystems.

2009–Present: Alternate Member (appointed) from Civil Society Sector, Special Commission of the San Juan Ecological Corridor

Description: Participate in the Commission's monthly meetings. Review and comment on government documents and projects, such as the

Management Plan for the San Juan Ecological Corridor, the San Juan Land Use Plan, and the San Juan Bay Estuary Program, among others.

2003–Present: Member, Executive Committee, Cupey Arboretum (community-based NGO), San Juan, Puerto Rico

Description: Co-coordinate reforestation and cleanup projects, including the National Cleanup Day in the Rio Piedras as part of the National Coastal Cleanup Day. Offer educational talks to school students. Participate in public hearings on proposed construction projects within the Arboretum. Comment on and help write legal motions in appeal cases.

2008–2009: Emissary for Graduate Student Diversity, Midwest Crossroads Alliance for Graduate Education and the Professorate, Indiana University-Bloomington

Description: Help with diversity-related recruitment activities on campus, such as campus tours, presentations or Q&A sessions. Blog about different aspects of graduate student life in Bloomington.

2008–2009: Member (appointed), Dean's Student Advisory Council, SPEA, Indiana University-Bloomington

2007–2008: Representative at-large (elected), Association of SPEA Ph.D. Students, Indiana University-Bloomington

SKILLS

- Language: Spanish (native speaker), English (fluent), French (basic skills)
- Qualitative methods: Qualitative Comparative Analysis (QCA) software
- Spatial Analysis: ArcGIS and ArcMap for GIS
- Statistical Analysis: STATA, Limdep and SPSS
- Modeling: STELLA and VENSIM for System Dynamics

PROFESSIONAL ASSOCIATIONS

- International Association for the Study of the Commons (IASC)
- International Society for Ecological Economics (ISEE)
- Midwest Political Science Association (MPSA)
- Puerto Rico National Association of Environmental Law (ANDA)