

**Institutional Change and Forest Management:  
The Case of Tlalmanalco, Mexico**

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## Résumé de la thèse

### Changement institutionnel et gestion des forêts : le cas de Tlalmanalco, Mexique (1877-1999)

Cette étude examine les modalités du changement institutionnel dans la gestion des forêts de Tlalmanalco, au Mexique sur la période 1877-1999 à partir d'une approche méthodologique qualitative. Le niveau d'analyse est celui du domaine, un niveau intermédiaire entre politiques nationales et organisations et groupes locaux. Nous examinons ici le domaine composé des organisations locales, parties prenantes dans la gestion des forêts de Tlalmanalco.

L'utilisation d'une double approche méthodologique comprenant (1) l'approche contextualiste et (2) la théorie ancrée (grounded theory) permet de mettre à jour et les cycles institutionnels long terme (1877-1996), et les micro-processus de changement institutionnel au cours de la période de transition 1996- 1999.

Au niveau macro, nous avons ainsi identifié trois cycles institutionnels dans la gestion des forêts : (1) le cycle de l'élite entrepreneuriale (1877-1910), (2) le cycle de la gestion communautaire (1910-1940), (3) le cycle de la gestion centralisée industrielle (1940-1991). Chaque cycle institutionnel représente un archétype de gestion qui se caractérise par (1) une philosophie de gestion, (2) un modèle organisationnel dominant, (3) une configuration de relations interorganisationnelles, (4) des groupes favorisés, (5) des groupes défavorisés et (6) des angles morts.

Au niveau micro-institutionnel, l'étude détaillée des processus de transition (1996-1999) révèle la coexistence de deux formes de collaborations interorganisationnelles dans la gestion des forêts. D'une part, la collaboration *transformationnelle* représente une forme de participation ouverte, coordonnée par le leadership charismatique et le partage de valeurs. Elle vise à construire une vision collective pour le futur de la gestion des ressources forestières. D'autre part, la collaboration *transactionnelle* représente une forme de participation restreinte à des tâches limitées, coordonnée par l'échange de ressources matérielles et d'expertise.

Cette recherche idéographique éclaire deux thèmes négligés par les études antérieures sur le changement institutionnel. D'une part, cette étude met en lumière les liens entre politiques décidées au niveau macro (nationales) et leurs implications au niveau des institutions micro (locales). D'autre part, elle explore en profondeur les modalités de changement institutionnel entre deux cycles institutionnels long terme.

## **Abstract**

### **Institutional Change and Forest Management: The Case of Tlalmanalco, Mexico (1877-1999)**

This study examines institutional change in forest management in Tlalmanalco, Mexico, over the period 1877-1999 based on qualitative methods. The level of analysis is the domain of forest management, a level of analysis intermediary between macro/national policy and micro/local organizations and groups. I examine the domain composed of local organizations stakeholders in forest management in Tlalmanalco.

The dual research methods include (1) a contextualist approach revealing long institutional cycles over the long run (1877-1996) while (2) grounded theory procedures reveal micro-processus of institutional change in the transition period 1996-1999.

At the macro level, I have identified three institutional cycles of forest management: (1) the entrepreneur elite cycle (1877-1910); (2) the community-based management (1910-1940); and (3) the centralized industrial cycle (1940-1991). Each institutional cycle represents a management template which includes: (1) a management philosophy, (2) a dominant organizational template, (3) a configuration of interorganizational relations, (4) included groups, (5) excluded groups and (6) blind spots.

At the micro-institutional level, the detailed study of the change process (1996-1999) in forest management reveals that two forms of interorganizational collaborations co-exist in the current domain. First, transformational collaboration is a form of open participation coordinated around charismatic leadership, and based on shared values. It aims to build a collective vision for the future of forest management. Second, transactional collaboration is a form of participation restricted to specific tasks, coordinated by the exchange of material and expertise resources.

The contributions of this ideographic study highlight two themes neglected so far by previous research on institutional change. First, this study shows the links between policies formulated at the macro/national level and their implications at the micro/local level. Second, it explores the process of institutional change between two long term institutional cycles.

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# Chapter 1: Introduction

## 1.1. Theoretical concerns: institutional change

‘Institutional change can proceed from the most micro interpersonal and suborganizational levels to the most macro societal and global levels. It can take place in relatively brief and concentrated periods or over time measured in decades and centuries. And it can take place incrementally, so that participants and observers are hardly aware if any change, or abruptly, in dramatic episodes that present large discontinuities with former patterns. (...) (M)ost of the (...) institutional literature (..) tends to focus on more micro-level, shorter time periods, and incremental change processes.’ (Dacin, Goodstein, & Scott, 2002, p.48).

This study on institutional change in forest management aims to go beyond the emphasis on micro-focus, short-time spans, and incremental change that has prevailed in research in the field. It responds to those concerns for an improved understanding of both long-term and short-term dimensions, of incremental and radical paces of change, and of the interplay between levels of analysis in change situations. It particularly examines two areas in institutional change. First, institutional theorists have examined the process of institutionalization and have proposed stage-models (Tolbert & Zucker, 1996), pressures (Scott, 1981) involved in institutionalization processes. These models and empirical studies have provided valuable insights on how an arrangement, such as an organizational form or a set of practices becomes institutionalized (Lee & Pennings, 2002). Yet, very few studies have explored the transition from one institutional template to another: we still have a limited knowledge of the process by which one institutional template is deinstitutionalized and replaced by another (Oliver, 1990; Lawrence et al., 2002, Dacin et al., 2002).

Second, institutional theorists have identified institutionalization factors (Russo et al, 2001) and patterns of generation and diffusion of innovations (Leblevici et al., 1991) in organizational and field-level settings. As Dacin et al. (2002) summarize it, researchers have tended to investigate micro-institutions, such as management fads or specific organizational forms (Djelic, 1998; Hoffman, 1997). However, little is known of the institutionalization process of broader templates – such as doctrines or policies formulated at the macro-level – into micro-level settings – such as intra-organizational, organizational, or domain-level ones. We need to better understand how an institution –

as a coherent configuration of a philosophy that guides collective action – is translated into the ground of organizational life (Dacin et al., 2002).

## **1.2. The case for historical domain level analysis**

This detailed study of a case in natural resource management in Tlalmanalco, Mexico over the period 1877-1999 aims to document both the broad patterns – in the form of institutional cycles – and the micro-processes – in the form of interorganizational collaborations from which new institutions may emerge. In doing so, this study adopts the research concerns proposed by Selznick (1949; 1996) for a detailed examination of how a management policy is translated into an organizational setting, and how the relations between the organization and its institutional environment affect the “implementation” of this policy.

This study adopts a historical perspective and domain level focus. I focus on both macro and micro perspectives in a case of natural resource management in Mexico to address these theoretical concerns on institutional change. On the one hand, I use a historical perspective to identify the broad patterns of institutional change in a natural resource regime over 120 years. The historical perspective helps us step back from current dynamics to identify how institutions are translated into management practices and interorganizational relations on the ground. On the other hand, I use a micro perspective to examine the details of the process of institutional change in the transition forest management went through in the 1996-1999 period. Of particular interest for me here are the patterns of organizing, in the form of interorganizational collaborations in the 1996-1999 period, which are potentially important arenas for institutionalization processes (Phillips et al., 2001; Lawrence et al., 2002).

### **1.3. Practical concerns for natural resource management**

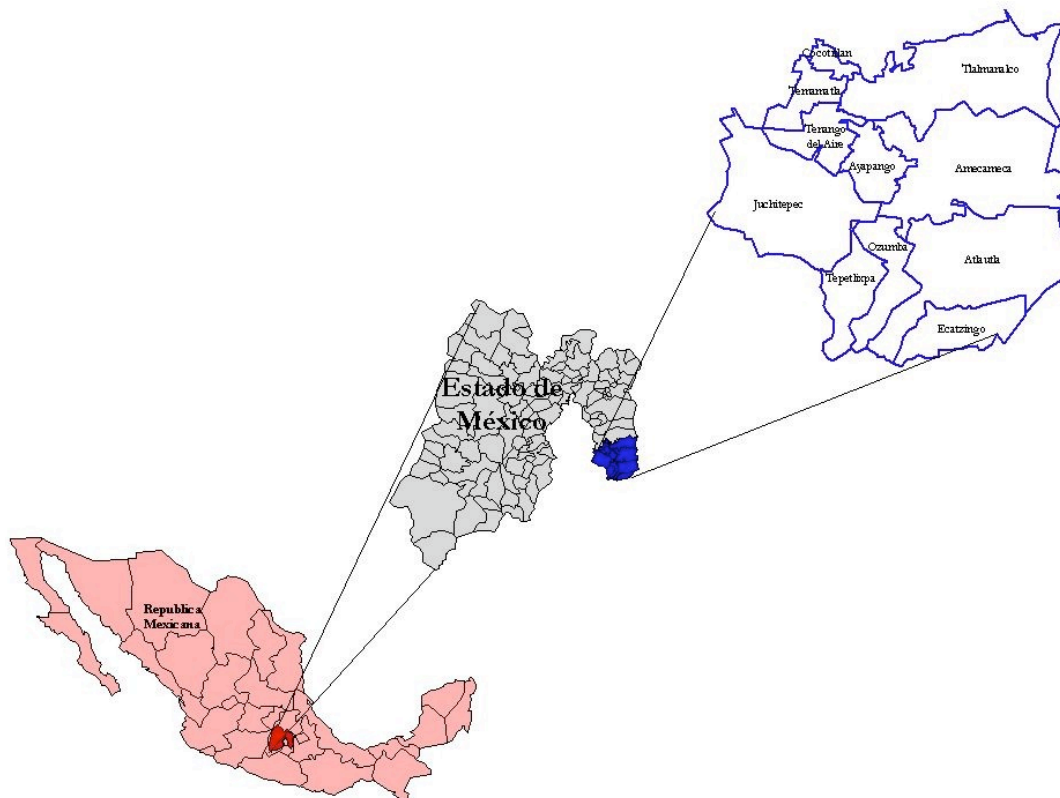
This study also aims to respond to practical concerns of natural resource management. There is an increasing recognition among resource management specialists that natural resource problems are not only problems involving the natural world or science, but also problems related to the organization of the social world (Holling, 1973; Ludwig et al., 1993; Gunderson, Holling & Light, 1995; Berkes & Folke, 1998; Holling, 2000; Holling et al., 2001; Westley, 1995). Empirical studies provide evidence that centralized organizations often fail to manage resources in a sustainable way since they are not adaptive (Westley & Vredenburg, 1995; Holling, 1995), and also because they deprive locals of motivation for managing resources in a sustainable way (Ponting, 1991; Scott, 1996). As a consequence, researchers situate institutional change toward the realm of small scale management – in the various forms of ‘decentralization’ and ‘local devolution’ (FAO, 1999), ‘community-based management’ (Agrawal et al., 1999), ‘social mechanisms for enhancing local traditional knowledge and resilience’ (Berkes & Folke, 1998) – as a promising solution for complex resource problems. It is argued that local regimes of resource management, which involve new organizational roles and interorganizational connections, may lead to improved resource management. Despite this promising policy avenue, we still have a limited understanding of the micro-processes of the implementation of this promising ‘policy of decentralization’ on the ground. In particular, very few empirical studies have actually examined the micro-processes of institutional change in natural resource management from the perspective of local organizations and interorganizational connections. The detailed examination of institutional change on the ground in Mexico aims to improve our understanding of these practical concerns.

### 1.4. The case study: Tlalmanalco, Mexico

#### 1.4.1. A geographical crossroads between forested mountains and the capital

Tlalmanalco is a municipality of 12,000 hectares located in the transitional area between the Basin of Mexico and the mountain range of the Sierra Nevada, in Central Mexico. Tlalmanalco is situated in the foothills between the metropolis located in the Basin of Mexico and the Sierra Nevada covered with forests. The topography is reflective of the location. While its lowest altitude is 2600 meters at the height of the Valley of Mexico, its highest point is about 4500 meters. While most human settlements are located in the lowest part of the municipality, forests are located on 10,000 hectares in the highest area.

### Map 1.1: Tlamanalco in the regional context



**Source:** Atlas Municipal de los recursos naturales de Tlamanalco, UAM Tlamanalco, 2000

In addition, Tlalmanalco is located in the foothills of one of Mexico's most recognizable symbols: the Iztaccihuatl and Popocatepetl volcanoes. According to an Aztec legend, the two volcanoes are linked to the very heart of the creation of the world. In the Aztec language of nahuatl, "Iztaccihuatl" means "white woman". This "white woman" is a snowy mountain in the shape of a young woman lying down and referred to by locals as *la volcana*, (a female volcano). Legend has it that a young male named Popo wanted to marry Izta, but was forbidden to. She waited for him, but fearing that he was killed in a war, she died of a broken heart. When Popo finally returned and found her dead, he stood permanently beside her until he was covered with snow and died (Moctezuma, 2001, p. 128). The two volcanoes in the landscape of the Basin of Mexico<sup>1</sup> stand as a reminder of the link between the Aztec past and modern urban and suburban life, and of the existence of pristine nature in a currently heavily contaminated urban area of 20 million people (Fuentes, 1999; Arridjis, 1999).

The proximity to the country's capital and most populated area, and the easy access to a large backdrop of forest and water resources have influenced Tlalmanalco's remote and more recent history. On one hand, Mexico City, the country's political and economic capital, has always been an outlet for local agricultural and natural resource-based products. The metropolis has been easily accessible by canals and lakes until the end of the eighteenth century, railways during most of the twentieth century, and more recently, by roads (Noyola Rocha, 1999). On the other hand, forest resources such as timber and water have long been the cornerstone of economic and social local life (Moctezuma, 2001).

#### **1.4.2. A history of exchanges**

This transitional location has also affected a large part of its history. In the Spanish era, Tlalmanalco supplied timber to the capital and the conflicts of ownership between Spanish colonialists and locals led to a viceregal decision. Spanish authorities concerned

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<sup>1</sup> For evocations of the environmental deterioration of the Metropolitan area, see Fuentes (1999) and Arridjis (1999).

with the conservation of the crown land responded to the concerns of the indigenous communities regarding the exploitation of forests by Spanish colonialists. In 1579, the Spanish viceroy responded to Indian complaints:

The Indians of the village of Tlalmanalco have informed me that the Spanish and other people cut the forests in a manner in which if there is no remedy one will finish with the forests. I order that no person without my license cut any trees and not at its base, observing the kingdom's laws. (cited in Simonian, 1995, p.39)

Later, at the end of the nineteenth century, as Mexico began industrialization, this location proved to be a comparative advantage and attracted a pulp and paper company interested in easy access to both resources – water and timber – and the main national market – the metropolis. The pulp and paper company lasted a century (1890-1991).

### **Entering the modern era: building and sustaining an industrial enclave in a rural world (1890-1991)**

Investors decided to establish the San Rafael pulp and paper Company in a hamlet of Tlalmanalco of the same name. While water and timber were available from the mountains, the company was able to sell paper and newsprint in nearby Mexico City, the main national market (Huerta Gonzalez, 1994). The San Rafael Company dominated the local spatial and institutional landscape as well as local forest management between 1890 and 1991. As the largest local employer and the ‘mother of pulp and paper industry in Mexico’, it created an enclave of industrial wealth, a ‘model village’ in a predominantly rural landscape (Espejel, 1993). Box 1.1 presents a vignette of the company and the enclave in the 1930s.

#### **Box 1.1: San Rafael-Tlalmanalco in the 1930s: a vignette**

‘San Rafael is a veritable city in constant growth. It has its own market, with food stores, clothing, shoes and other utilities and household goods which life demands. It has a barber shop, as well as a complete installation of vapor, Russian, Turkish, shower and tub baths as well as free medical, pharmaceutical and nursing attention. The workmen have their own Chapel, casino, Billiard Room and Dance hall, with pianolas, phonographs and radio; a library well stocked with books of all types, magazines, and periodicals. A musical section maintains the *Orquesta tipica de San Rafael*, composed of 50 professors and workers, which gives concerts periodically; a big well decorated Amusement Hall, especially constructed for theatrical performances, gymnastics and movies, public assemblies, banquets, etc., with a capacity for more than 3,000 people.’ p.96

‘The company works in this manner and lives without strikes or conflicts, in complete intelligence with its employees and workers for whose stimulation and educational solicitude the Contest of suggestions has been established. The Contest, celebrated annually, awards with a prize each idea or procedure for the improvement of the different phases of work.’ p.97

**Source:** Congreso Mundial de la prensa (1931): Document published by San Rafael Company, *our translation*.

Furthermore, for a century the San Rafael Company dominated forest management to supply its needs in timber with the aid of national governments interested in national industrialization policies (Huerta Gonzalez, 1994; Barreto Flores, 1998). At the turn of the century, after the Federal government had given concessions to the factory in terms of resources<sup>2</sup>, the San Rafael Company built hydro-electric and water supply infrastructures and started timber plantations. Although the revolution and land reform distributed land (including forested areas) to farmers’ communities between 1920 and 1935, the factory maintained its supply contracts with the newly established farmers cooperatives. In 1947, a presidential decree prioritized the factory in forest management as part of a national strategy of industrialization, imposed the use of forestry engineering techniques, and strictly regulated farmers’ involvement in the logging plans. Box 1.2 presents some dimensions of the centralized management regime.

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<sup>2</sup> For a detailed account of the strategies used by the factory to appropriate forest resources over the locals, see Huerta Gonzalez, 1994.

### **Box 1.2: The 1947 presidential decree and the era of scientific forest management**

An excerpt from a 1976 report highlights the rationale for the use of the method (Forestal, 1976, p.13):

It is only through an updated knowledge of the natural resources that a rational management will be possible. For this reason, it is essential to count with the information that permits the detection changes that such resources face, under the positive action of its cultivation, protection and development, as well as under the negative actions such as plagues, illnesses, irrational pasture, fires and illegal logging that occur even when the specialist develops special efforts to prevent them.

From 1947 to 1984, the forestal supplied 4,448 million cubic meters to the factory. This excerpt of a 1987 report pinpoints the forestal's central contribution to the factory in particular, and to the country's overall development at large:

The timber generated by the rational exploitation in this Unit has been a source of raw materials of great interest for the manufacturing of paper, which constitutes a strategic product for the development of the country (Forestal, 1987, p.103).

However, the era of centralized forest management dominated by the San Rafael Company ended in 1991. The factory closed in June 1991, reopened two months after and withdrew from both local affairs and forest management. In the 1990s, it no longer uses local timber, and now imports it from other parts of Mexico, from Canada and the United States.

## **1.5. Since 1990: Tlalmanalco at the crossroads of its history**

### **1.5.1. Living in the footprint of the metropolis**

In the 1990s, while the umbrella of the local dominating company has gone, external threats are at their height. The highly populated Basin of Mexico has become one of the world's most populated areas and critically threatened ecological regions. Among the nine regions covered in the volume *Regions at Risk: Comparisons of Threatened Environments*, a UN study concludes that only the Aral Sea is more at risk of a major

ecological crisis than the Basin of Mexico. As Ezcurra Exequiel et al., (2000, p.xiii) put it:

The Basin of Mexico exemplifies an endangered environment well on its way to massive criticality (...). An ecological crisis in the Basin of Mexico will almost necessarily result from the exhaustion of the water supply, the degradation of air quality to unhealthy levels, the silting of the drainage systems and the flooding of the city as a result of deforestation.

In 1997, the Metropolitan Plan for the Management of Natural Resources (cited in UAM, 2000, p.109) confirms these bleak forecasts. The Metropolitan Plan, a central forecast and planning authority, foresees an ecological crisis caused by deforestation and erosion by 2010 if current trends of resource use, atmospheric contamination and urban sprawl continue.

The forests of the Sierra Nevada are strategic in this current regional critical ecological situation. The regional ecology authorities identify the Sierra Nevada as “the last bastion of natural resources in the Basin of Mexico” (Metropolitan Plan, cited in Casa UAM, 1998). The forests are located in the ecological footprint of the megalopolis and their presence contributes to buffer the effects of the contamination of the metropolis. However, the sad irony is that the combined effects of uncontrolled atmospheric contamination and urban sprawl generated by the Mexico City area may be destroying this bastion of natural resources indispensable for preventing future ecological crisis (Chavez et al., 1996; UAM, 2000).

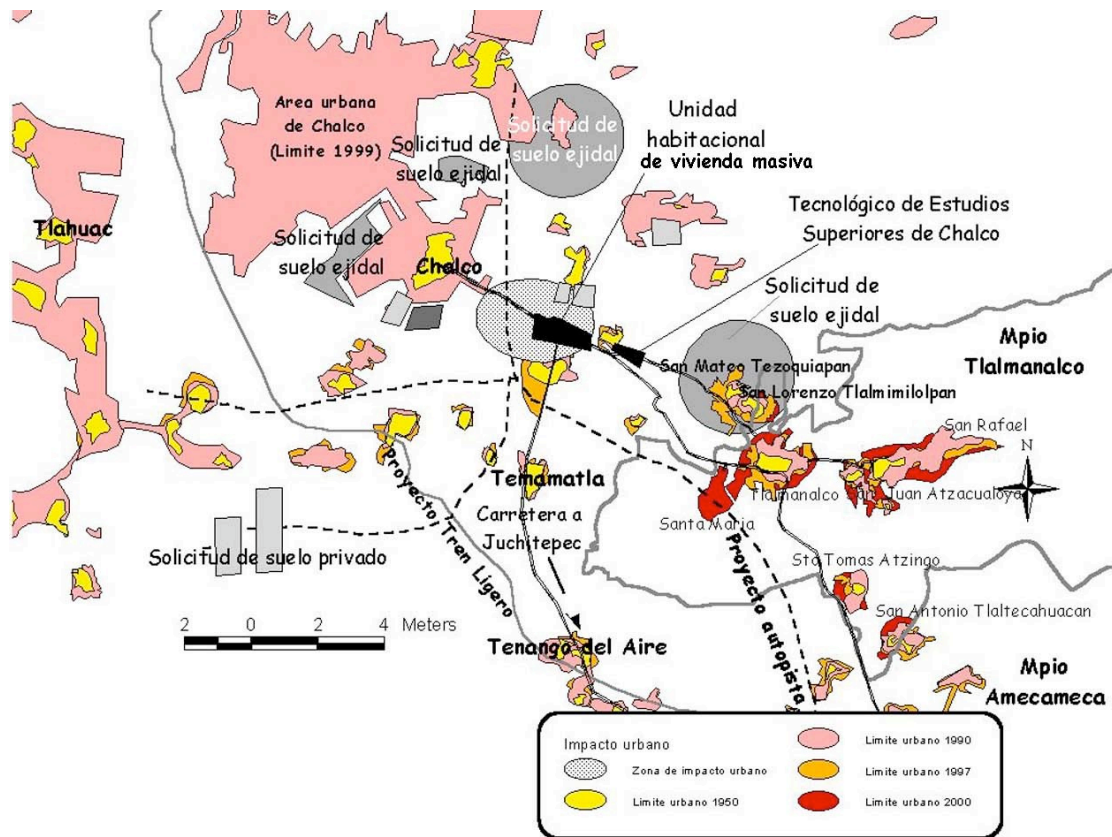
### **1.5.2. Increasing and diffuse threats**

Tlalmanalco's location as a point of exchange between the capital and the mountains, previously a source of comparative advantage in the industrial era, has become a liability as the pressures from the urban area threaten the local balance. A chronic disaster is at play, as various insidious threats infiltrate the biophysical integrity of local natural resources and the sense of local community (Erikson, 1994 in Westley, 1999). Threats on the biophysical integrity operate at all altitudes, from glaciers located at the top of the Iztaccihuatl (5000-5300 meters), on fragile high altitude ecosystems (4000-5000 meters), and on forests located in lower areas (2500-4000 meters). The combined effects of global

warming and urban atmospheric contamination threaten the glaciers of the Iztaccihuatl; two out of the eight glaciers have melted since the 1980s, which has decreased the amount of water available downstream (Chavez et al., 1996). The fragile high altitude ecosystems around the volcanoes are also under serious ecological stress, as the lack of monitoring and enforcement of environmental regulations has led to large scale biophysical degradation (Vargas, 1998). The ecological situation of the forests located in lower areas is also critical. Around 85% of the forested areas are classified as 'very or extremely unstable' and need a permanent forest cover and the remaining 15% face moderate or acute erosion (UAM, 2000, p.101). Illegal logging has also spread in this area.

In addition, uncontrolled urban sprawl from the Metropolis disrupts the sense of local community as two trends gradually threaten to transform Tlalmanalco from a predominantly rural area into a bedroom community. First, since the local economic situation offers very few employment opportunities for locals, about 50% of the local work force commutes daily to the metropolitan area (Noyola Rocha, 1999). Second, many dwellers from the Metropolitan area settle in Tlalmanalco as land is more affordable than in more densely populated areas of the metropolis (Moctezuma, 2001). As a result, the population of Tlalmanalco has grown from 29,000 in 1980 to 43,000 in 2000. Population forecasts based on current trends predict a population of 80,810 in 2010 and 151,705 in 2020 (UAM, 2000, p.88). Map 1.2 presents the effects of urban sprawl in Tlalmanalco.

**Map 1.2: Urbanization patterns in the Southeast of Mexico City**



Source: Atlas Municipal de los recursos naturales de Tlalmanalco, UAM Tlalmanalco, 2000, p.88

### 1.5.3. Visions of Tlalmanalco for the millenium: suburban area or green belt?

These increasing ecological and urbanization threats challenge the character of Tlalmanalco. The turn of the millenium represents a historical crossroads; choices made now will determine the future of the locale. Two visions compete: The first vision for 2020 is of Tlalmanalco as a suburb; it may become a suburban area swallowed in the metropolis and lose its rural character as many of its neighboring municipalities located closer to Mexico City have become. The second vision is of Tlalmanalco as part of a green belt that would halt urban sprawl. Tlalmanalco may maintain and nurture its character based on the sustainable management of local natural resources and become a green belt of natural resource management able to halt the chaotic spread of the Southeastern part of the metropolis (UAM, 2000). The evolution of forest management,

due to the importance of forests in the locale and because of its potential for local economic development, is central to bringing about one or the other vision.

#### **1.5.4. Organizations: roles and challenges**

Various organizations are stakeholders and have various claims on forest management.

##### **1.5.4.1. Old local organizations, new roles**

For the first time in their history, local organizations have a central role in shaping this common future in municipal affairs and in forest management. Decentralization in both municipal affairs and forest management redefines the roles for the five local organizations who are the stakeholders in forest management. Of these organizations, three existed before decentralization: the municipal government, the *ejido*, and the forestry engineering firm. The municipal government represents the municipal common goods, including the forest, as a source of ecological and economic benefits for the local population. The *ejido*, a farmers cooperative, holds the forests collectively, and the forestry engineers manage and monitor the forests. Two civil organizations were established in 1997. The *CSI (Consejo Social Iztaccihuatl)* represents the concerns of the local population, and *Casa UAM-Comunidad* is a bridging organization between an academic institution and the local community. In the paragraphs below, I introduce the two domains and how recent institutional changes affect organizational roles and interorganizational relations in each of these domains.

#### **Municipal affairs: the challenges of participation**

Before 1991, the San Rafael Company dominated the local landscape; the municipal government (*Honorable Ayuntamiento de Tlalmanalco de Velazquez*), with limited budgets and capacity for action, had a limited role. The central process in the domain of municipal affairs was traditionally political bargaining. It involved claim-making by

municipal interest groups aligned with the political parties, and the allocation of resources obtained from federal and state level institutions by the municipal government to these local political interest groups. The three main political parties represented in Tlalmanalco are the PRI (*Partido Revolucionario Institucional*) which ruled from its inception in the 1930s until 1997, the PRD (*Partido de la Revolucion Democratica*) that won the elections in 1997, and the PAN (*Partido de Accion Nacional*). These three political groups are the local branches of the national parties and are represented in the municipal government in proportion with their results at the municipal elections every three years.

The end of the domination of the San Rafael Company in 1991, and the decentralization law of 1983 both offer the potential to change this process of political bargaining in municipal affairs. The 1983 law decentralizes numerous decisions and budgets from federal to municipal instances, and aims to create the construction of new spaces for a more participatory and democratic management of local affairs. Box 1.3 presents the highlights of decentralization of municipal affairs. The decentralization law of 1983 establishes the Plan of Municipal Development as one of the main vehicles for enhancing participation. The Plan of Municipal Development, a requirement each newly elected municipal government has to conduct in collaboration with local civil organizations, is to guide municipal policies based on an open popular participation (Moctezuma, 2001).

### **Box 1.3: Decentralization to municipal level (1983)**

The 1983 law of municipal reform (Ley de reforma municipal) gives municipal governments more room for managing local affairs and more funding for the completion of projects. Motivated by the 'limitations of centralized policies as strong constraints on national development' (Massolo, 1995), the law intends to include citizens into the municipal policy making process in order to consolidate the municipality as the key space for political participation in the search of solutions for social claims (Massolo, 1995).

A central element in this reform, the Plan of Municipal Development (Plan de Desarrollo Municipal) must be developed in a participatory manner by the newly elected municipal government in the first four months of the term. It contains a global vision for the municipality as well as annual operating plans. Decentralization also involves the transfer of financial resources from state and federal levels to the municipal level; in 1999, more than 90 % of the municipal budget of Tlalmanalco comes from these transfers (Ayuntamiento, 1999).

Source: Massolo, 1995 and Moctezuma, 2000, UAM 2000, p.34.

The decentralization law of 1983 intends to encourage municipal participation in policy-making based on collaboration between the municipal government and civil organizations beyond the traditional game limited to political parties. This more inclusive process of participation aims to enhance a more open and solid municipal policy-making and strengthen municipal civil society. The 1983 law redefines the role of the municipal government from the implementing body of national policies to a facilitator for local development. It also aims to redefine its relations with local civil society from clientelism to a more facilitating role.

### **Forest management: the challenges of value-creation**

Forest management before 1991 involved a strict division of work between formulation by forestry engineers and implementation by farmers' cooperatives, in order to supply timber to the San Rafael Company. The end of the San Rafael Company in 1991 and the 1996 forest law have encouraged organizations to redefine their roles and relations. Box 4 summarizes these changes. The two local organizations involved are *Servicios Forestales*, a forestry engineering firm and the *Ejido de Tlalmanalco*, a farmers' cooperative.

#### **Box 1.4: Decentralization of forest management (1996)**

The Mexican strategy to forest management as formulated in the 1996 forest law has recently shifted from a tradition of centralized, top-down approaches to decentralized, community-based management schemes (Simonian, 1995; Simon, 1996). This shift has transformed Mexico into the "world's largest experiment in community based forest management" (Alcorn & Toledo, 1998). The new forestry law (UAM, 2000, p.60) thus offers forest holders the opportunity to extract timber and create value on forest products under the technical supervision of accredited forestry engineers.

Forestry engineers have managed the forests of Tlalmanalco since the inception of the San Rafael Company at the end of the nineteenth century under various organizational forms. Between 1897 and 1946, forestry engineers worked directly for the San Rafael Company. Between 1947 and 1991, they worked as technical service providers within the *Unidad Forestal*, an organization funded by the factory affiliated to the Secretary of Agriculture. The 1996 forestry law changed their status, and they are currently organized in private professional firms contracted by the forest holders for logging plans (*Plan de*

*aprovechamiento forestal*). The purpose of the law is to change their role from a technical focus— centered on the forestry engineering dimensions of logging activities – to a ‘value creation’ one, which includes enhancing land holders’ participation in new aspects of their training in market research and development, from processing and distribution of forest-related products (Escalante & Aroche, 2000, pp.120-121).

The *Ejido de Tlalmanalco* is one of the five *ejidos* in the municipality and covers more than 90% of the municipal forested area. Established in 1934 by presidential decree, it currently has 162 ejidatarios with 196 hectares of land for cultivation and 9,825 hectares of forested area (UAM, 2000, p.101). Its role has traditionally been limited to the implementation of logging plans formulated and monitored by engineers. The 1996 forest law encourages the ejido’s members to “shift from subsistence farmers to forest entrepreneurs” (Escalante and Aroche, 2000). Forest-related incomes have traditionally been marginal in farmers’ livelihoods, and their expertise in forest management is still limited. The law provides them with economic incentives to process natural resources in order to create value. The *Ejido de Tlalmanalco*, with 9825 hectares of strategically located forests, has a large potential market for timber and agricultural products and for ecotourism-related services in the metropolitan area (UAM, 2000).

This section presents existing organizations and how decentralization laws aim to change their roles and relations in their domains. In the section below, I present the organizations that have emerged as stakeholders in municipal affairs and forest management in this new, enabling legal context.

#### **1.5.4.2. New organizations, new challenges, new roles**

*Consejo Social Iztaccihuatl* (CSI) and *Casa UAM-Comunidad*, two civil organizations established in 1997 are also stakeholders in local affairs and forest management. Established by thirty inhabitants of Tlalmanalco concerned with the degradation of the local cultural and ecological heritage, CSI aims to become an umbrella organization for local initiatives in the conservation of the local culture and ecology. An interdisciplinary

project in applied research and community services, *Casa UAM-Comunidad* organizes and hosts the PMRNSN (*Programa de Manejo de Recursos Naturales de la Sierra Nevada, Program for the Management of Natural Resources of the Sierra Nevada*). Its objective is to encourage research projects supported by UAM, a university in Mexico City, in order to improve the management of the regional natural resources and to foster small scale productive community-based projects that use these local natural resources in order to create the conditions for sustainable economic and ecological development of the region (Moctezuma, 2001).

## **1.6. Summary of the chapter and outline of the study**

This section presented the setting of natural resource management in Tlalmanalco. It particularly examined how the local geography set the stage that has in turn shaped the history of the locale into the current face of forest management. Thus, the case study of forest management in Tlalmanalco, Mexico in the 1996-1999 period, exemplified intense institutional change in two domains. The domain of municipal affairs was limited to political parties in a process of political bargaining. On the other hand, forest management until 1991 in Tlalmanalco was dominated by a formulation/implementation process. It dealt with timber extraction and concerned the San Rafael Company, an organization of forestry engineering, and farmers' cooperative. Both the scope of forest management and relations between the three organizations were strictly regulated in order to supply the pulp and paper company with timber.

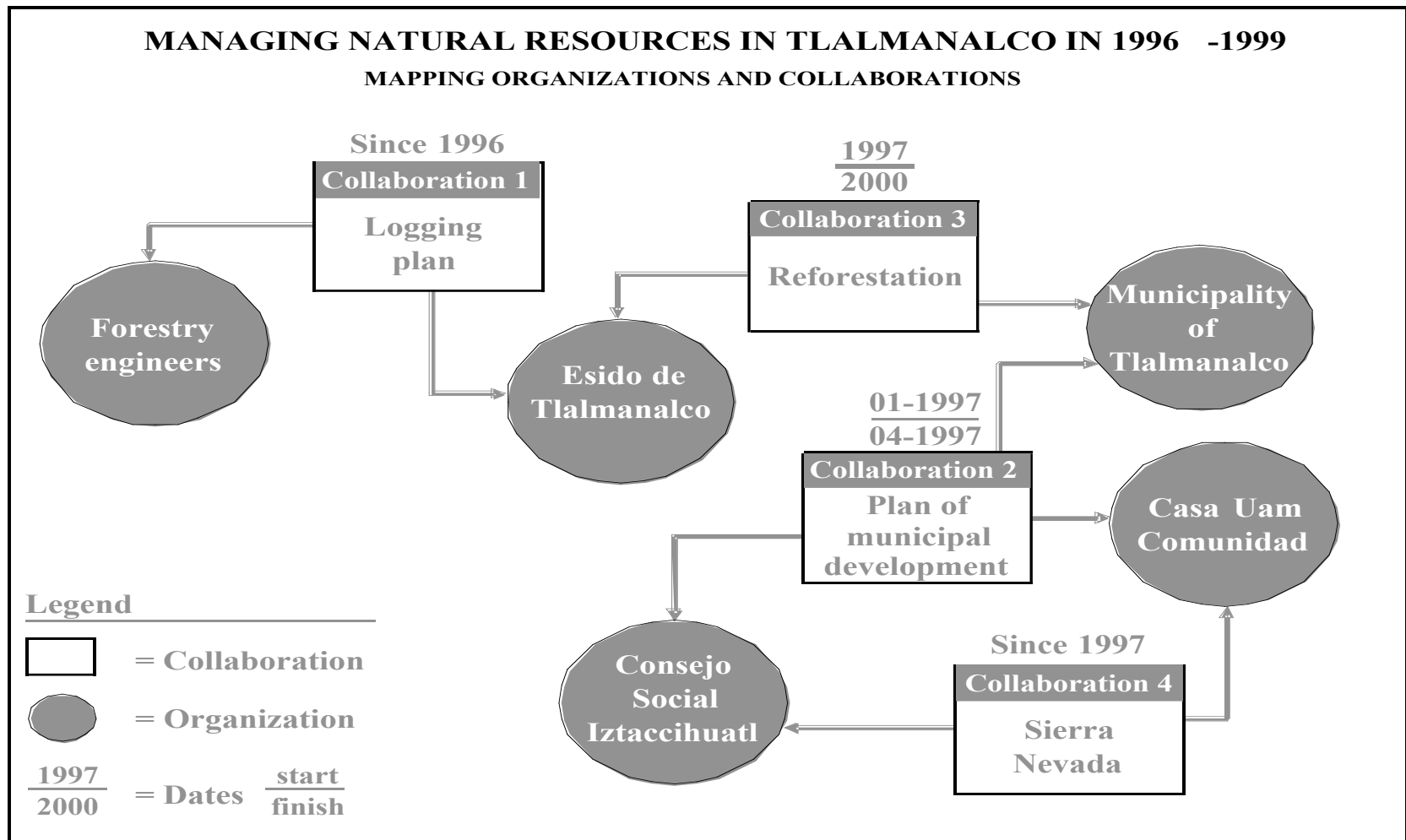
In the 1990s, the two domains shift. Laws encourage new organizations to emerge, and existing organizations to change their roles and relations in both domains. In 1999, municipal affairs are in transition from a political bargaining process to a more open and participatory one. In addition, the face of forest management is constantly being redefined as local organizations negotiate their relations and as their interorganizational arrangements begin to shape the future of local forest management.

### **Outline of the study**

The first chapter introduced my theoretical and practical concerns and presented the geography, the history, and current institutional transitional situation of forest

management in Tlalmanalco in the 1996-1999 period. Chapter 2 outlines the theoretical concerns of this study. It briefly reviews research on institutional change and identifies two research areas. Chapter 3 introduces the methodologies used to investigate the empirical case study in view of the theoretical concerns. This study is based on qualitative data and I use two complementary strategies for analyzing process data (Langley, 1999): the contextualist approach (Pettigrew, 1990) for documenting and identifying the institutional cycles and the procedures of grounded theory (Corbin & Strauss, 1998), to obtain a detailed analysis of the current patterns of organizing. Chapter 4 presents the history of institutional cycles of forest management in the 1877-1996 period. In Chapter 5 the four interorganizational collaborations that emerge in the 1996-1999 period are discussed in detail. Finally, findings of the study appear in Chapter 6.

**Chart 1.1: Organizations and interorganizational collaborations in the management of natural resources in Tlamanalco in the 1996-1999 period**



## **Chapter 2: Theory of Institutional Change**

The introduction outlined the practical concerns of this study – the challenges of forest management in Tlalmanalco, and how institutional change aims to address them. This second chapter outlines my theoretical concerns: institutional change. It highlights how the study of the history of a local management regime and of recent interorganizational collaborations aims to address these concerns.

This chapter has three sections. Based on Selznick's study of TVA and the Grassroots, (1949; republished 1966) I first present some concerns on institutional change. Second, I identify the research areas of this study, namely the questions of the change from one institutional template to another, and the interplay between different levels of analysis in the change process. Third, I introduce the analytical framework of an institution, and the rationale for a combined approach of historical and micro perspectives for improving our understanding of institutional change.

### **2.1. Theory of institutional change**

#### **2.1.1. Selznick's *TVA and the Grassroots***

Institutional change, both in the form of the emergence and the transformation of institutions, is a central aspect of organization research. Selznick's (1949; 1966) *TVA and the Grassroots, a study in the sociology of formal organization* provides important insights on institutionalization processes for organization researchers (Selznick, 1996; Tolbert & Zucker, 1996). This early study is important from three standpoints. First, in the 1940s, the Tennessee Valley Authority (TVA) then represented an innovative institutional arrangement and created many hopes for fostering local participation in regional development. The second important element was the originality of Selznick's research focus in this study: his intention was to go beyond the official doctrine and to understand the methods and activities themselves (1966, p.8). Third, the theoretical

conclusions of this study provided central contributions for the understanding of institutional process in organizations.

First, in terms of the empirical object, in the 1940s TVA<sup>3</sup> represented an innovative institutional arrangement that departed in its various aspects from more traditional policy-making because of (1) its philosophy, (2) its definition of the role of the government, (3) the nature of the relations between the government and the organization in charge of implementing the policy, (4) the organizational template it promoted, and (5) the coordinating mechanisms chosen for the organization and the locals (Selznick, 1966; Scott, 1996).

First, its philosophy was a grassroots philosophy which aimed to foster local bottom-up participation for regional integral development. The TVA agency was given responsibility for the unified development of the resources of a region; this integral and participatory focus differed from traditional sector-based governmental agencies (for instance: agriculture-only agencies) in charge of implementing policies decided elsewhere (Selznick, 1966, p.6). The second innovative aspect of the TVA concerned the role of the central government: the federal government provided resources to the agency but left its management at the discretion of its leading team, as long as the activities concerned the mandate decided upon by the Congress. Third, as a consequence, the relations between the state and mandated organization were based on an assumption of responsibility for the agency in a spirit of decentralization and regional unity (1966, p.6). Fourth, the organizational template decided on by the government was the TVA agency, ‘a relatively

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<sup>3</sup>Selznick about the origins of TVA (1966, p.4):

‘The Tennessee Valley Authority was created by Congress in May, 1933, as a response to a long period of pressure for the disposition of government-owned properties in Muscle Shoals, Alabama. (...). The Muscle Shoals investment was to remain in public ownership and this initial project was to be provided with new goals and to be vastly extended. A great public project was envisioned, mobilizing the by-product of dams built for the purpose of flood control and navigation improvement on the Tennessee River and its tributaries. (...). These major powers—authority to construct dams, deepen the river channel, produce and distribute electricity and fertilizer— were delegated by Congress to a corporation administered by a three-man board of directors.’

autonomous public corporation free in important aspects from the normal financial and administrative controls exercised over federal organs' (1966, p.5). Fifth, the coordinating mechanism between the central organization and locals to bring about regional integral development was negotiation. Much leeway was given to the agency to negotiate participation with local groups in order to bring about regional development: the 'agency had the freedom to devise methods for dealing with local people and institutions which would reflect the democratic process at work' (1966, p.6).

For its democratic grassroots philosophy, regional integral focus and its concerns for local participation, the institutional arrangement of "TVA" was broadly viewed as an exemplary experiment in innovative policy-making (Selznick 1966; Scott, 1996).

Second, what also makes Selznick's study most interesting beyond the innovative policy-making at work was the lens he adopted. Selznick (1949) decided to examine in detail how the abstractions of the 'grassroots philosophy' were 'implemented' in their organizational and interorganizational setting. His point of departure was that (1966, p.xii):

'It was with the aim of looking closely and asking questions about means and ends that I approached TVA's philosophy of "grass roots" administration. I sought to understand the price that is paid when an ideology becomes a resource in the struggle for power. I began with the premise that in administrative life, as elsewhere, what is unscrutinized is uncontrolled and what is uncontrolled is often costly.'

His objective was to understand the links between the promises contained in the grassroots philosophy and its implementation in the form of an organization on the ground (the agency interacting with local organizations) and how, in turn, this organization, as a living social system was able to influence the management and policy philosophy (1966, p.6). As such, this detailed study represents a unique and comprehensive 'empirical analysis of a particular organization, of its doctrine, of a phase of policy in action, of its interactions with other organizations' (Selznick, 1966, p.255).

This study provides insights central to the understanding of the process of institutionalization in organization research. Selznick particularly revealed that the 'implementation' of the grassroots doctrine into the actual TVA agency had led to a

serious weakening of TVA's capacity to be a conservation agency, its initial mandate. He specifically demonstrated that the agency had to co-opt some members of the local elite in order to bring about the actions required. The co-optation had consequences for the character and role of the organization and brought unanticipated consequences (1966, p.15).

Third, on a more theoretical level, Selznick proposed definitions of an organization, an institution and of the institutionalization process. First, he highlighted the distinction between organization (as a 'competence', as a tool for collective action) and institution (as a 'character', as a set of values shared among individuals). He proposed that an organization is 'a social instrument that attempts to mobilize human and technical resources to achieve its mission' (1966, p.251). However, such a tool is not a neutral technology that serves the philosophy, but is rather 'a human structure that mediates social action as it generates new centers of need and power and interposes itself between the actor and his goal' (Selznick, 1966, p.253). In contrast, Selznick defined an institution as a set of values shared by individuals that go beyond the task at hand. Then, the process of institutionalization concerns 'the emergence of orderly, stable, socially integrating patterns out of unstable, loosely organized or narrowly technical activity' (Selznick, 1996, p.271). In *Leadership in Administration* (1957), he particularly argued that the role of the leader in the institutionalization process is central for infusing values into the organization beyond the task at hand.

His second contribution to institutionalization theory was to highlight that an organization is embedded in and is subject to pressures from an institutional environment (1966: 251). He explained how the environment contributes to shaping organizational policy:

The grassroots policy and doctrine must be understood as related to the need to come to terms with certain local and national interests; and that in actual practice this procedure resulted in commitments which had consequences for the policy and the behavior of the authority itself. (1966, p.12)

These findings were important for research on institutionalization processes and were expanded by later researchers.

### 2.1.2. The process of institutionalization: stages and pressures

Later researchers have expanded the examination of institutionalization processes at the organizational level. As a whole, the institutional theory of change explains how organizations adopt institutional arrangements. An institutionalized arrangement is taken for granted by the members of an organization: it has a “fact-like” quality and is perceived to be legitimate and necessary (Tolbert & Zucker, 1996). The institutionalization process is both a property (*what* is institutionalized?), and a process (*how?* in terms of stages and mechanisms) (Tolbert & Zucker, 1996). Institutional theorists investigate the diffusion of “arrangements”. The definition of arrangement is loose; arrangements are ways of thinking and getting things done at various levels of analysis; they may be intra-organizational practices, specific organizational templates, or interorganizational practices. Examples include the gradual adoption of the multidivisional-form by most large U.S. corporations over the first half of the twentieth century, as this organizational structure benefited the strategy adopted (Chandler, 1963), and change in organizational and interorganizational practices in the radio and television industry over a century (Leblevici et al., 1991). More recently, in the field of environmental management, Lounsbury (2001) studied the diffusion of recycling programs among U. S. universities and Hoffman (1997) examined the birth and diffusion of corporate environmental policies from heresy to dogma among U.S. corporations in the 1970-1995 period.

In all, institutional theorists explore the processes by which arrangements of social life emerge, become ‘taken as given’, and may be replaced. They declare that organizational behavior is not only the result of market pressures or of the organizational search for performance in a given task-environment, but also the result of the influence of values, ideas, and norms that originate in the institutional context (Selznick, 1966; Tolbert & Zucker, 1996). They propose that organizations must accommodate institutional expectations, regardless of the specific technical requirements of the task at hand (Di Maggio and Powell, 1991). For instance, an accounting firm aiming for professional certification will adopt specific standard procedures and a specific organizational

template to conform to its professional and regulatory environment. These procedures may or may not contribute to improving its operational performance; however, in doing so, it increases its legitimacy and thus its chances for survival (Hoffman, 1997; Greenwood & Hinings, 1996).

In turn, although the adoption of these arrangements may be motivated by a search for legitimacy, it also has symbolic and action-generating properties and will orient organizational action (Tolbert & Zucker, 1996, p.177). Institutionalized arrangements are significant because they represent important causes of stable patterns of social behaviour and a condition for organizational stability (Tolbert & Zucker, 1996, p.179). For instance, a company may follow a managerial fad and adopt a TQM (Total Quality Management) program although other quality or production-related solutions could have been more appropriate for addressing its production problems. In any case, the adoption of this TQM program will effect organizational action, as it will shape future organizational routines and goals, and interpersonal interactions.

At a more theoretical level, researchers have proposed stage-models of institutionalization (See: Tolbert & Zucker, 1996, and Lawrence et al., 2001 for an excellent summary) and of the mechanisms of institutionalization (Scott, 1981; Scott, 1995; Leblebici et al., 1991).

### **Stages of institutionalization**

Zucker (1987) proposes a model of the institutionalization process which includes the stages of innovation, habitualization, objectification, sedimentation, and deinstitutionalization. At the first stage, an institutional innovation is a response to task-related problems such as technological change, new legislation, or market forces. The innovation is context-specific. It is still a “heresy” (Hoffman, 1997), a marginal practice in the context of a given organization or interorganizational field; it is often generated among peripheral players of an industry (Leblebici et al, 1991). In the habitualization stage, the solution is formalized and transferred in the policies of an organization or of various organizations. The innovation is “disembedded” from the original organizational

setting in which it was developed and it is gradually adapted to other settings. In the third stage, that of objectification, a social consensus emerges on the value of the innovation, which accelerates its pace of adoption by other organizations; the innovation has become mainstream. The fourth stage, sedimentation, consists of the survival of the arrangement across different generations of organizational members. The scope of the arrangement broadens, as variations on it are made (Tolbert & Zucker, 1996, p.184). It has acquired a fact-like property, it has become “dogma” (Hoffman, 1997) and its existence is justified by efficacy reasons. Finally, in the deinstitutionalization stage, the institutional arrangement is replaced by another arrangement that is perceived as more efficient than the previous one (Oliver, 1991). Table 2.1 presents the stages of the institutionalization process.

**Table 2.1: The process of institutionalization: stages**

| Stage                  | What happens?  | Who acts?  |
|------------------------|--|--|
| Innovation             | Response to task-related problems such as technological change, new legislation, or market forces.   | Pioneers, few organizations.   |
| Habitualization        | The arrangement is disembedded from the organizational setting in which it was developed. Formalization of such arrangements in the policies of an organization or of various organizations. | An independent activity conducted by an organization or a few organizations. such as a group of consultants or a group that formalizes and theorizes about the innovation. |
| Objectification        | A social consensus on the value of the arrangement accelerates the pace of adoption by other organizations.  | Members of organizations or an interorganizational field who favour the arrangement.   |
| Sedimentation          | Survival of the arrangement across different generations of organizational members. The arrangement gains depth and width. It has a fact-like property.                                      | Everyone in the organization or interorganizational field.   |
| Deinstitutionalization | The arrangement is replaced by another arrangement perceived as more efficient.  |  |

The four stages are based on Tolbert and Zucker, 1996 for the first four stages and Oliver (1991) contributes to the fifth stage.

### **Mechanisms of institutionalization**

Scott proposed three forms of pressures (1981)<sup>4</sup> on how the institutional context acts on organizations. Coercive pressures occur when a powerful actor, such as the state, uses force in order to gain compliance. Normative pressures are cultural expectations that actors feel compelled to honor. Finally, mimetic pressures occur when actors or organizations feel compelled to mimic the behavior of other referent actors as this behavior is associated with effectiveness. These pressures lead organizations to adopt similar arrangements and become isomorphic.

**Table 2.2: Pressures of institutionalization: three mechanisms (Scott, 1981)**

| <b>Pressures</b> | <b>Description of the pressures</b>  | <b>Example</b>  |
|------------------|--|---|
| Coercion         | Use of force by a powerful actor, such as the state, in order to gain compliance.                  | A decree obliges natural resources holders to sell them at a set price to specific clients.                       |
| Norms            | Cultural expectations that actors feel compelled to honor.   | Professional affiliation obliges accountants to change accounting norms.  |
| Mimetic          | Mimicking the behavior of other referent actors as this behavior is associated with effectiveness. | A company starts outsourcing some of its activities because most of its competitors already practice outsourcing. |

In all, institutional theory has been ‘institutionalized’ in organization studies; it has provided a diverse body of research on the process – in terms of stages and pressures – of the institutionalization of arrangements in organizations (See e.g. Tolbert & Zucker, 1997; Zucker, 1987; Powell & DiMaggio, 1991) at various levels of analysis – from intra-organizational, organizational to interorganizational levels – and in terms of research topics.

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<sup>4</sup> Scott (1995) wrote an updated version of the mechanisms in terms of processes instead of pressures (Scott, 1981). However, for the purpose of this study, I use the earlier version.

## **2.2. Two areas for research in institutional change**

Two areas in institutional research need further inquiry. Table 2.3 summarizes these two research areas. Various models of stages and pressures of institutionalization have informed us about the stages and mechanisms of the emergence of new institutions (see Tolbert & Zucker, 1996; Scott, 1981, e.g.). In particular, studies on the diffusion of innovation at the level of a population of organizations have informed us of the broad patterns of diffusion (e.g. Hofmann, 1997).

However, the change between one institutional arrangement and another remains largely under researched (Lawrence et al. 2001; Goodman et al. 2001). Authors have tended to examine the innovation, habitualization, objectification, and sedimentation stages, the first four stages of the institutionalization process. They have often overlooked the transition between the sedimentation and deinstitutionalization stages, as well as the shift from one institution to another institution. More specifically, the question of whether change from one institution to another occurs incrementally or through a quantum leap remains unexamined (Miller & Friesen, 1983). In all, we still have a limited understanding of the processes of deinstitutionalization and reinstitutionalization (Tolbert & Zucker, 1996). Hence, my first research question:

***What is the process by which one institution is replaced by another institution? What happens between the end of an institution and the emergence of stable patterns of the new one?***

A second area for more research concerns the dynamics of change across levels of analysis. By level, I mean loci of collective action, or ‘places’ in a social system, where actions are generated. I use here Pettigrew et al. (2001)’s suggestion to view the context of organizational actions as levels in interaction: the pace and form of change of one level of analysis – such as the national level – affects another level of analysis – such as the organizational or domain level. I assume that the context is not “out there” as a provider of stimuli to a specific organization or domain. Rather I propose to view the context as an interaction between these different levels in interaction. Examples of levels include

global, national contexts, but also the domain, and organizational levels of analysis. In the case of forest management in Mexico, national policies have progressively shaped organizations concerned with forest management.

So far, institutionalist theory of change in organization studies has often focused on the examination of a single level of analysis: empirical studies have emphasized the diffusion of an innovation in intra-organizational or interorganizational settings. The research has been useful for understanding the patterns of diffusion of a given arrangement in a given population of organizations (See: Russo, 2001, Hofmann, 1997, Lownsbury, 2001, for examples). However, it has not enhanced our understanding of how an institutional arrangement developed at one level is translated at another level. There has been a general neglect of the interplay between different levels.

We still have only a limited understanding of cross-level change, or of how change at one level affects change at another level of analysis (Goodman et al., 2001). Issues such as the lag between the development of an institutional arrangement at one level and the translation at another level remain largely unexplored (B. Lawrence et al., 2001). Also, studies have often assumed that organizations adopt these innovations, and overlooked the possibility that they may shape or transform them. Exploring further these dynamics would respond to Selznick's recent call for the integration of micro and macro study levels (Selznick, 1996). Hence the second research question:

***How is a policy formulated at a macro-level of analysis translated at the organizational and interorganizational micro level?***

**Table 2.3: Summary of research questions on institutional change**

| <b>Research so far</b>  | <b>Need for an improved understanding of...</b>   |
|---|---|
| <b>1.</b> Institutional theory of change has offered a limited understanding of the process of institutional change at the stage of deinstitutionalization/institutionalization, or of the process of change from an institutional template to another. | The pace and the form of change: quantum or incremental change (Miller and Friesen, 1983; Lawrence, 2001).                                      |
| <b>2.</b> Institutional theory of change has often <b>focused on a single level of analysis</b> , e.g., intra-organizational or field-level and represented change as a qualitative property (Tolbert and Zucker, 1996).                                | How an institution at one level effects change at another level of analysis (Selznick, 1949; 1996; Goodman et al., 2001; Lawrence et al. 2001). |

### **2.3. This study**

This study aims to contribute to the documentation of these research areas. In order to do so, I propose (1) an analytical framework of an institution, specifying the rationale for the choice of (2) a domain level of analysis and for (3) the examination of institutional cycles and of current interorganizational collaborations.

### 2.3.1. Analytical framework of an institution

Here, I propose to analyze an institution as a coherent configuration of ideas, routines and practices that aims to achieve specific collective objectives. Such a configuration reflects preferences: some ideas, values, groups, etc. are preferred over others (Greenwood & Hinings et al., 1996; Selznick, 1966; Weber, 1957). Examples of such institutional innovations are the large schemes of social engineering studied by Scott (1996). Scott, in *Seeing like a State*, examines the ‘well-intended state-initiated schemes to improve human conditions in the twentieth century’ (p.4). Such schemes include examples of state interventions such as the high modernist city planning by Le Corbusier, the implementation of green revolutions in developing areas, and soviet planning after 1925. Scott highlights that these schemes held a common focus on simple measurable objectives – such as creating a ‘functional’ urban design, increasing agricultural output in a specific crop, or producing steel – and relied heavily on scientific, expert knowledge – such as expert urban design, planning and engineering, chemicals and mechanic-based agriculture – in the definition of the performance and in the implementation of these schemes. He contends that this focus on one-dimensional objectives and single use of expert technical knowledge led however to unanticipated ecological and social consequences. As for ecological consequences, he argues that the use of these highly modern modes of production led to the creation of agricultural systems heavily dependent on chemicals and eventually led to ecological and social demise. On the other hand, he argues that these schemes altered traditional structures, and therefore contributed to transforming civil societies to which these schemes were applied into ‘prostrate citizenries’ further disrupted by the implementation of these schemes.

Scott explains the failure of these highly modernist schemes, as social engineering initiatives launched by the state, by the use of four ingredients. The first is the ‘administrative ordering of nature and society’, which aimed to make the territory, with its population and national space more ‘legible’<sup>5</sup> and more controllable by the state. The

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<sup>5</sup> Scott (1996, p.2): ‘The premodern state was, in many respects, partially blind; it knew little about its subjects, their wealth, their landholdings and yields, their location, their very identity. It lacked anything

second was a high-modernist ideology. This ‘strong, even say muscle-bound, version of the self-confidence about scientific and technical progress’ (Scott, 1996, p.4) led the state to discard non-scientific approaches and inexperienced forms of knowledge, and led to the denial of signs that the implementation of the scheme had undesirable and counterproductive outcomes. The third was an authoritarian state willing and able to use its coercive power to implement these highly modernist schemes. The fourth was a prostrate civil society, unable to resist these schemes and weakened by the implementation of these social engineering schemes.

In this study, I am interested in examining in detail how these schemes – in the specific form of institutions for forest management – have evolved over a long period of time. To do so, I use a framework for analyzing institutions. Based on Selznick’s study of TVA and the grassroots, I analyze an institution as being composed of seven elements. These seven elements are anchor points that aim to attract attention to specific dimensions and make comparisons easier. An institution is ‘composed’ of (1) *a philosophy*, which is the basic values and assumptions that motivate actions; (2) a definition of *the role of the center*, i.e. the state; (3) *an organizational template* that aims to bring this philosophy to life at the local level; (4) *a preferred coordinating mechanism* used at the local level by the organization to implement this policy and to establish relations with local organizations; (5) and (6) represent *the boundaries of membership* – a philosophy reflects preferences, and some local groups will be (5) favored by the policy and others will have a (6) less favorable position – or will be excluded; (7) the *blind spots* of the institution or unanticipated consequences of these choices.

To illustrate the use of this simple framework with the case of Selznick’s (1949) *TVA and the Grassroots*: (1) the philosophy was the grassroots doctrine; (2) the role for the US

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like a detailed “map” of its terrain and its people. It lacked, for the most part, a measure, a metric, that would allow it to “translate” what it knew into a common standard for a synoptic view.’ (...). Processes such as ‘the creation of permanent last names, the standardization of weights and measures, the establishment of cadastral surveys and populations registers, the invention of freehold tenure, the standardization of language and legal discourse, the design of cities, and the organization of transportation (were) attempts at legibility and simplification. In each case, officials took exceptionally complex, illegible, and local social practices, such as land tenure customs or naming customs, and created a grid whereby it could be centrally recorded and monitored.’

Federal government was to manage the context and provide resources; (3) the organizational template was the largely decentralized agency; (4) the coordinating mechanism between the agency and the local institutions was negotiation; (5) groups included in the decision-making processes and incentives schemes were among others, large local farmers; (6) groups excluded from the decision-making schemes were poorer local farmers; and (7) the blind spots were that unanticipated consequences of the co-optation of the well-off farmers groups significantly altered the organizational policies.

Table 2.4 summarizes the dimensions of an institution.

**Table 2.4: Operational definition of an institution**

| <b>Dimension</b>                         | <b>Definition</b>   | <b>Example based on Selznick (1949)</b>  |
|--|---|--|
| Philosophy                               | Principles that motivate a policy, basic assumptions that motivate actions.                 | Grassroots philosophy.   |
| Role of the center - national government | What role does philosophy give to the central government?                                   | Provides resources, indirect intervention through TVA agency.  |
| Organizational template                  | What is the organizational template designed to implement this policy on the ground?        | TVA (a mandated and decentralized agency).   |
| Coordinating mechanism                   | What is the coordinating mechanism promoted by this policy?                                 | Negotiation between TVA and grassroots organizations.  |
| Membership - included                    | Who is included in benefits and decision-making processes?                                  | Most powerful grassroots movements.  |
| Membership - excluded                    | Who is excluded in benefits and decision-making processes?                                  | Poor farmers and population  |
| Blind spots                              | What are the unexpected consequences of the institution? In social and in ecological terms? | Unanticipated consequences, co-optation of most powerful groups led to significant policy alterations. |

Elaboration of the framework by the author, example Selznick (1949)

### **2.3.2. Domain-level analysis**

In Selznick's tradition, the type of institutional change I am interested in exploring further here concerns schemes that link macro and micro-levels, the connections between policies formulated by a state at the national level and their implementation 'on the ground' at the local level, the links between management philosophies and practices, and the conversations between central agencies and local organizations. Examples of these institutions include democratic planning techniques (Selznick, 1949) and 'highly modernist schemes' (Scott, 1996).

Thus, understanding the evolution of a problem domain, as a social system located at the meso-level between the societal/macro and the organizational/micro level is important for understanding the interplay between these two levels of analysis (Gray, 1989).

A problem domain is a functional social system which occupies a position between a single organization and society and is composed of a set of organizations linked by a common meta-problem (Gray, 1989). A problem domain is both social and perceptual. It is social in that it is composed of actors or organizations linked by a common problem. It is perceptual because organizations define and negotiate the issues. Recent examples of problem domains examined in management literature include the whale-watching industry in the Vancouver area (Lawrence et al., 1999), the Canadian refugee system (Hardy et al., 1998), the biodiversity crisis (Westley, 1999), the making of Canadian environmental policy (Pasquero, 1991), and round tables on pollution control (Turcotte, 1995).

### **2.3.3. Understanding past and present patterns of institutional change**

#### **Examining institutional cycles**

I am interested here in both historical and micro perspectives in a case of natural resource management in Mexico to address these theoretical concerns on institutional change. On

the one hand, I use a historical perspective to identify the broad patterns of institutional change in a natural resource regime over 122 years. The historical perspective helps us step back from current dynamics to identify how institutional cycles unfolded in the past and how they have been translated into management actions on the ground.

### **Examining patterns of organizing**

On the other hand, I examine the interorganizational collaborations in the 1996-1999 period, an important period of institutional change because interorganizational collaborations are important arenas for institutionalization processes (Phillips et al., 2001). Interorganizational collaboration is an unstructured coordinating mechanism. Collaboration is non-routine, non-hierarchical, is not a market transaction, goes beyond political mechanisms, and represents a moment in which there are both vestiges of previous institutions and seeds of new ones. Interorganizational collaborations are ‘places’ where new institutions are negotiated (Strauss, 1978). Therefore, in a moment of institutional change, they represent actual mechanisms by which new institutional templates in interorganizational fields and new institutions emerge. Collaboration is the ideal place for studying institutional change.

### **Conclusion of the chapter**

In this chapter, I have presented the theoretical concerns for this study: (1) an improved understanding of the transition between institutional templates and (2) the interplay between macro and micro levels of analysis in the process of institutional change. Second, I explained the rationale for the choice of the focus of this study, which is to examine past institutional cycles and current patterns of organizing at the domain level. The next chapter outlines the methodological concerns of the study.

### Chapter 3: Research Design and Methods

In this chapter, in view of (1) the research questions, I explain the rationale for (2) a domain research focus, (3) the methodological option of case study research (Eisenhardt, 1989; Yin, 1990), (4) the choice of the case of Tlalmanalco, (5) the methods for collecting qualitative data; and (6) the decision for a dual research strategy for analyzing data combining the contextualist approach (Pettigrew, 1990; 1992) and grounded theory procedures (Corbin & Strauss, 1998). Table 3.1 summarizes the methodological and empirical options of this study.

**Table 3.1: Summary of the research design and methods of this study**

|   |   |
|---|---|
| 1. Research questions   | <ol style="list-style-type: none"> <li>1. What is the process by which one institution is replaced by another institution?</li> <li>2. How is a policy formulated at a macro-level of analysis translated at the organizational and interorganizational micro level?</li> </ol>   |
| 2. Research focus   | Organizations in interaction in a problem-domain.   |
| 3. Methodological Option  | Case study research (Eisenhardt, 1989; Yin, 1989) applied at the domain level.  |
| 4. Empirical research   | The management regime of natural resources in Tlalmanalco, Mexico, in the period 1877-1999: with a historical perspective on institutional cycles (1877-1996) and a micro perspective on emergent patterns of organizing (1996-1999).   |
| 5. Qualitative research Step 1: collecting data.  | <ol style="list-style-type: none"> <li>1. Archival – historical and contextual – data: documenting the history and the national context;</li> <li>2. Interviews: documenting the personal experiences of the participants in interorganizational collaborations;</li> <li>3. Observational data: documenting the interactions during collaborations.</li> </ol> |
| 6. Step 2: dual strategies for analyzing data.<br>6.1. Macro-analysis: Contextualist research (Pettigrew, 1990) | Contextualist research methods (Pettigrew, 1990; 1992) used for:<br><ol style="list-style-type: none"> <li>(1) making sense of the historical and institutional context;</li> <li>(2) exploring the connections between the organizations, interorganizational collaborations and their broader context.</li> </ol>   |
| 6.2. Micro-analysis: Grounded theory procedures (Corbin and Strauss, 1998)                                      | <ol style="list-style-type: none"> <li>(1) understanding the interactions inside each collaboration.</li> <li>(2) comparing and mapping the collaborations;</li> <li>(3) understanding the processes of the collaborations.</li> </ol>  |

### **3.1. Research questions**

The research questions that motivate this study are:

- 1. What is the process by which one institution is replaced by another institution?*
- 2. How is a policy formulated at a macro level of analysis translated at the organizational and interorganizational micro level?*

### **3.2. Research focus: the domain level**

The level of analysis of this study is the problem-domain. A problem-domain is a functional system located between a single organization and society as a whole (Gray, 1989). A problem-domain joins stakeholders around a set of issues. This implies that the focus is neither the organization nor a single collaboration. I am not interested here in exploring the relationships between an organization and the natural environment. Research on organizations and the biosphere has often been orgo-centered – or centered on the needs and the survival of individual organizations (Egri & Pinfield, 1996). From this perspective, sustainability is more often equated with organizational sustainability than with ecological sustainability (Bilimoria & Skikantia, 1998). I am interested here in understanding the evolution of institutions as they are translated into the relations between organizations.

Nor is the focus of my research on the process and outcomes of a single collaboration. This “collaboration-centered” approach has provided useful insights for practitioners of collaboration (Gray & Hay, 1986; Gray, 1989; Gray 1991). However, it may have contributed to viewing collaboration as a transient mechanism for “organizing in the absence of authority” (Gray, 1999).

Authors from various research perspectives suggest a focus on the dynamics of interorganizational collaborations in a domain. From a problem resolution perspective,

Westley and Vredenburg (1997, p.398) contend that “much can be learned from studying a population of collaborations within a problem-domain rather than an individual collaboration”. They suggest that attention should be directed not only to single collaborations but also to the types of connections linking collaborations. This understanding of a population of collaborations could help us understand the extent to which the domain is adapted for collective problem resolution. From a critical perspective, Hardy and Phillips (1998, pp.217-219) also propose to extend the level of analysis from a particular collaboration to an interorganizational domain and to view collaboration as only one of the strategies of engagement pursued by organizations as they try to manage the interorganizational domain in which they operate. They propose to map the processes by which these interorganizational conversations and interactions shape the domain.

In summary, this research focuses for theoretical reasons on the interorganizational dynamics at the domain level. In the next section, I explain how my methodological option - the case study research - fits with the research questions and focus.

### **3.3. Methodological option: case study research**

The case study methodological option is appropriate for studying interorganizational dynamics in a problem-domain for the following reasons. First, as Yin (1989, p.23) recommends, “case study investigates contemporary phenomena in a real-life context; when the boundaries between phenomena and context are not clearly evident”. The phenomena I am investigating are current and the boundaries between the problem-domain and its context are not pre-established but rather in constant redefinition, as organizations interact. Second, as Yin (1989) further proposes, case study research methods consider that various case studies are embedded in a single case study. This research method is then appropriate since my research concern is to obtain a better understanding of the institutional cycles and of the patterns of organizing from a domain level focus. Third, according to Eisenhardt (1989), case study is a research strategy which focuses on understanding the dynamics present within single settings. In this study, I

intend to shed light on interorganizational dynamics. Fourth, Yin (1989) and Eisenhardt (1989) both contend that case study method is appropriate for exploring open research questions. Such open questions motivate this study. Finally, single case study methods are standard in studies conducted on a domain. Examples of such studies include the elimination of the DDT from the economy (Maguire, 2000), the dynamics of refugee systems (Hardy, 1994; Hardy & Phillips, 1998), and the biodiversity crisis (Westley & Vredenburg, 1997; Westley, 1999).

### **3.4. Empirical research: Tlalmanalco, Mexico**

#### **3.4.1. Description of the case of Tlalmanalco**

The case study I am investigating is comprised of the organizations and interorganizational collaborations active in the management of the natural resources over the 1877-1999 period, in the municipal territory of Tlalmanalco, State of Mexico, Mexico.

The criteria for establishing the boundaries are (1) spatial, (2) temporal, and (3) organizational/interorganizational. The spatial boundaries are those of the municipality of Tlalmanalco. Tlalmanalco is located at the Eastern tip of the Basin of Mexico and has approximately 10,000 hectares of forests (Casa UAM, 2000). The temporal boundaries are the 122 years, from 1877 to 1999. 1877 was the year President Porfirio Diaz began his 33 year long rule. His policies had significant impact on forest management in Tlalmanalco. At the other end, 1999 represents the moment of transition toward a new management era.

#### **Historical and extensive focus: examining institutional cycles (1877-1996)**

1877 corresponds to the beginning of the rule of Porfirio Diaz over Mexico which led to land concentration and favored industrial users of the forests. A centralized management regime aimed at supplying the San Rafael Company, a leading producer of pulp and paper in Mexico (Espejel, 1993), dominated the management of the forests in various forms

between 1893 and 1991. Established by a pair of presidential decrees (1890, 1947), this management regime strictly set the roles of the stakeholder groups both in terms of decision-making and costs / benefits allocation. A ban on forest use (1991-1995) followed after the company stopped using local timber in 1991.

### **Contemporary and intensive focus: examining patterns of organizing (1996-1999)**

An era of intense change has followed the enactment of a new National Forestry Law in 1996. This Law has encouraged the establishment of community-based management schemes. Not only has this new framework provided the opportunity for changing traditional relations among organizations active in the domain of the natural resources, but new organizations, such as the *Casa UAM-Comunidad*, a local research center for the management of natural resources, and the *Consejo Social Iztaccihuatl*, a local civil organization interested in conservation of the local cultural and natural heritage, have also emerged as players in the domain.

The organizational/interorganizational boundaries of this case are the result of the spatial and temporal boundaries. The organizations active in the management of the natural resources in Tlalmanalco are (1) the *Ejido de Tlalmanalco*, the farmers' cooperative which owns most of the municipal forested areas; (2) the Municipality of Tlalmanalco; (3) the *Casa UAM-Comunidad*; (4) the *Consejo Social Iztaccihuatl*; and (5) *Servicios Forestales*, a forestry engineering consulting firm.

These organizations have engaged in four collaborations for the management of local natural resources. For instance, the *Ejido de Tlalmanalco* has collaborated with *Servicios Forestales* in the design of a ten-year management plan for timber extraction; the Municipality has collaborated with the *Ejido de Tlalmanalco* and *Probosque* to conduct reforestation campaigns; the *Consejo Social Iztaccihuatl* has been working with the *Casa UAM-Comunidad* in the *Sierra Nevada Project*, which includes various participatory processes for local environmental diagnostics and small-scale productive projects.

### **3.4.2. Criteria for case selection**

The criteria for selecting the research site are based on theoretical and practical concerns.

#### **3.4.2.1. Theoretical concerns for case selection**

The features of the case study of the management of natural resources in Tlalmanalco have the potential of addressing my theoretical concerns. First, from the historical perspective, Tlalmanalco is particularly interesting site for the study of institutional cycles since it contains the institutions that have been the prototypes for each institutional cycle: hacienda and large factory as of the end of the nineteenth century, *ejidos* (farmers' cooperatives) and scientific management institutions for most of the twentieth century. Second, from the micro/current perspective, Tlalmanalco is characterized by an extremely dynamic life of emergent organizations since 1996: the case “contains” a variety of interorganizational collaborations in the problem-domain of forest management; this diversity of collaborative forms could contribute to the better understanding of the patterns of organizing in a moment of institutional transition.

Second, the deep economic, legal, and social changes in the management regime over the last decade have the potential to illuminate how the macro-context affects the local management regime in a domain. Since 1996, the management of natural resources includes a wider range of organizations and issues. As a result, this case study provides a promising opportunity for an improved understanding of the links between the change in macro-contextual factors and micro-domain dynamics.

### **3.4.2.2. Practical concerns for case selection**

#### **3.4.2.2.1. Mexico as a representative example of the transition in Forest Management**

As seen in chapter 1, paradigms in the management of natural resources have recently shifted from centralized, top-down approaches to decentralized, community-based management schemes. The transition Mexico has undergone throughout the 1990s exemplifies this trend. Simonian (1995) points out that Mexican national policies traditionally prioritized industrial uses of forest products, centralized authority and excluded local dwellers and farmers from the management of the resources. The 1996 national forestry law has encouraged the gradual establishment of new community-based management schemes and the inclusion of local initiatives, which has transformed Mexico into the “world’s largest experiment in community based forest management” (Alcorn & Toledo, 1998).

#### **3.4.2.2.2. The relevance of a domain focus study in the Mexican environmental context**

The preparatory work conducted in the Mexican context of the management of natural resources in July 1999 confirmed to me the practical relevance of the domain focus. Both preliminary interviews and readings highlighted the need for such a study. For instance, Victor Urquidi, a leading Mexican researcher and policy-maker, pointed out that a common problem in Mexico’s environmental policy was not the absence of institutions in charge of specific aspects of natural environment problems. To the contrary, he identified this “administrative proliferation” and the “lack of coordination among existing institutions (as) key factors for explaining the frequent difficulties in addressing environmental problems” (Professor Victor Urquidi, personal communication, July 1999).

On the local level, some specific case studies on the management of natural areas confirmed a better understanding of interorganizational dynamics as a relevant practical

issue worth exploring. For instance, in the Management Plan for the Izta-Popo National Park (*Plan de Manejo del Parque Nacional Izta-Popo*), Chavez & Boix (1996, p.13):

A point that may contain many obstacles (for the implementation of this Management Plan) is the one that deals with coordination, since various governmental institutions intervene in the management of the park. In a few words, it is unclear which institution will be in charge of managing the park or who has to be consulted to do such or such thing. If we sum up, we can see which institutions are involved: SEDESOL (Secretary for Development and Solidarity), INE (National Institute for Ecology), SARH (Secretary for Agriculture and Hydrological Resources), state level and municipal institutions as well as communities (*bienes comunales*) and the farmers' cooperatives (*ejidos*).

#### **3.4.2.2.3. Relevance in the local context**

In the local context, the forested areas of Tlalmanalco also represent high economic and social stakes. The management of natural resources presents opportunities for local social and economic development (Chavez & Boix, 1996; Casa UAM, 1998; UAM 2000). The new decentralized management regime also offers opportunities for the inclusion of new collaborative forms and new organizations into the management of natural resources. Such opportunities for income-generating activities include, among others, timber-cutting, cultural and ecological tourism, and the transformation and commercialization of local natural products (UAM, 2000).

### **3.5. Conducting qualitative research**

This study uses qualitative data from various sources. In the following two sections I explain how I collected and analyzed data.

#### **3.5.1. Collecting data**

I started the inquiry with a broad definition of the research problem and therefore gathered different types of data from different sources. These sources include: written –

historical and contemporary – documents, interviews and observational notes. Written documents – in the form of books, archival data, and pamphlets – were the primary sources of historical and contextual data. Interviews – with older participants for the historical context, and with recognized experts for the broader context – aimed at triangulating the analysis of these written documents. Interviews with the participants of the collaborations were the primary material for documenting the personal experience of the individuals engaged in collaborations in the period under study (1996-1999). These written documents and interviews were complemented with observational data. The following table presents the links between theory questions and data sources. At least two data sources were used to provide an answer to each research question.

**Table 3.2: Theory questions and data sources**

|                            |   |   |
|----------------------------|---|---|
| <b>Research questions</b>  | Question 1: Examining the replacement of one institution by another.                        | Question 2: Exploring the macro-micro links.  |
| <b>Data sources</b>        |   |   |
| <b>Historical data</b>     | Archival data and written data on similar management regimes in other parts of the country. | Understanding the broader economic, social and institutional context of the management of natural resources.  |
| <b>In-depth interviews</b> | Interview with older participants of previous management regimes.                           | Interview with all participants of these collaborations and of actors from the broader institutional context. |
| <b>Observational data</b>  |   | Observe meetings between participants in collaborations<br>Observe organizational meetings.                   |

### **3.5.1. Gathering historical data**

I gathered a significant amount of information on the history of the management of forest and natural resources in Mexico and in the local region, as well as on the factory and the locale per se. These important secondary sources are presented in Appendix A.

### **3.5.2. Conducting interviews**

Interviews are the second type of data gathered for this study. Their purpose is twofold. The first is to document aspects of the context not previously available in writing. In doing so, my objective is similar to the concerns of local historians, namely to document the experience of participants at the micro-level. However, my second and main purpose of conducting interviews is to record the experience of participants in collaborations *per se*.

Eighty-six interviews were conducted. Their duration varies from 30 minutes to 5 hours, with an average length of 1 hour. After each interview a summary was written up. Seventy-five of the interviews were tape-recorded. All the tape-recorded interviews were transcribed verbatim. Three transcribers in Mexico City and in Tlalmanalco were given specific instructions for doing so. For example, they were specifically asked not to correct the syntax or alter the particular terms used by the interviewees. The total written transcriptions of the interviews represent more than 1,500 pages. Eleven interviews were not tape-recorded because those interviewees indicated that they were not comfortable being recorded. For these 11 interviews, detailed notes were taken and were used to reconstruct them in written form immediately after each interview. Confidentiality was ensured to all interviewees.

The criteria used to choose the interviewees were, in order of importance: visibility, reference, and expertise. Visibility refers to the fact of holding a key position in organizations active in the management of the natural resources. Examples include the officials from the municipality or leading individuals of the ejido. Reference is the fact of being referred as a stakeholder by other stakeholders involved in the management of natural resources. Examples include farmers and citizens without formal organizational positions but who were involved in participatory processes. Finally, expertise concerns the fact of having specific knowledge or information on a strategic aspect of natural resource management. Examples of experts interviewed include forestry engineers,

historians of the Mexican pulp and paper industry, and social scientists recognized nationally as specialists on natural resource and land issues.

As a result, all but one visible and referred participant engaged in collaborations in the 1996-1999 period were interviewed. The only exception was one leading municipal official, who I was unable to interview even though I made five appointments with him. Most of these visible and referred participants were interviewed twice, one of them three times.

I began my fieldwork with broad research questions. In the first round of interviews (July-August 1999), an open protocol of questions was used to obtain the information necessary to map the relations between organizations and identify interorganizational collaborations. This protocol of questions is provided below:

### **Protocol of initial questions**

#### **Re: problem definition:**

- How do you see the situation of natural resources in Tlalmanalco?
- If the person mentions the word “problem”, then:
- Is there a problem related to the management of natural resources in Tlalmanalco? In the area? In the region?
- What is the nature of this problem? What are the causes and the effects of this problem? What has changed? What has aggravated/improved the situation?
- How do you see the situation in the future?

#### **Re: interorganizational dynamics:**

- What groups/organizations are active in the management of natural resources? What kind of actions do they bring about?
- How do you view these groups/organizations? How do you view these actions?
- What have your relationships been with these groups/organizations? Have you worked with them? Have you been in conflict with them? Around what issues? When?
- Do you interact with the representatives from these groups/organizations? How often? Personally? By phone?

- With whom do you suggest I speak to obtain another point of view on the situation?

In the course of interviews, I followed the instructions proposed by Pettigrew (1990), namely (1) asking and interpreting opposite questions; (2) listening, being adaptive and flexible; (3) being knowingly unbiased - or at least being aware of my biases; and (4) gaining a firm grasp of the issues being studied. As previously indicated, the purpose of conducting these interviews was to make sense of how participants engage in interorganizational collaborations and how they themselves make sense of their context and of their collaborative interactions.

### **3.5.3. Notes and observations**

The third type of data is in situ observations. These were used to complement the analysis of written documents and of the interviews conducted.

Two types of notes were made. On the one hand, descriptive notes were taken during specific events and after informal conversations. These descriptive notes were made to report the event as accurately as possible. I used the “journalist questions” (Who? Where? When? How? Why?) as a checklist for taking notes. For instance, I participated in the reforestation campaign and went reforesting two Saturdays in a row in July 1999. I took notes of the details of who reforests, in what areas of the mountain, how reforesting activities are coordinated, how participants are trained, why they engage in these activities, and also on the questions they asked me. Each day, I took brief notes and transferred them to the computer in the same afternoon.

The second type of notes is composed of ad hoc reflections inspired by specific contexts or situations. In making these notes, I was more interested in stimulating my own thinking about what I heard, saw, felt, and perceived than about the actual details of the observations. An example is the official ceremony of the closing of the reforestation campaign, on October 12, 1999. As a result of my participation in reforestation, I was

invited to that ceremony by the municipality. However, I was surprised to be awarded a prize “from the honorable municipality of Tlalmanalco for enthusiastic participation in the 1999 reforestation campaign”. In such ad hoc notes, I wrote down my immediate impressions of receiving this award and described the ceremony. Such notes aim to create an intellectual space necessary for creative thinking (Weick, 1979).

### **3.6. Combining strategies for analyzing data**

Langley (1999) proposes seven strategies for building theory from process data. She defines these strategies as “*sensemaking strategies, or generic approaches that help fix the attention on some anchor point to structure the material*” (1999: 694). These seven strategies are: (1) narrative/contextualist; (2) quantification; (3) alternate template; (4) grounded theory; (5) visual mapping; (6) temporal bracketing; and (7) synthetic strategy. Each of these approaches has a specific key anchor point, matched to process data complexity, specific data needs, type of theory built, and form of sensemaking.

I adopted both contextualist (Pettigrew, 1990; 1992) and grounded theory procedures strategies. The uses of these two dissimilar strategies respond to the theoretical concerns to explore the connections between macro-level changes and domain-level dynamics, and how organizations affect collaboration. On the one hand, the contextualist strategy aims to (1) highlight the longitudinal-temporal interconnectedness and (2) identify the links between the broader context and the embedded phenomenon (Pettigrew, 1990: 227). However, if this strategy is effective for linking the context of a phenomenon with the phenomenon itself, it is less so at identifying micro-processes.

On the other hand, grounded theory procedures (Corbin & Strauss, 1998) are particularly suited to identifying micro-processes and categories with specific dimensions and properties. However, as Langley (1999: 700) puts it, such a strategy may lose “the broad pattern of the forest through the rich description of trees” (Langley 1999, p.700). Table 3.3 presents the strengths and limitations of these approaches.

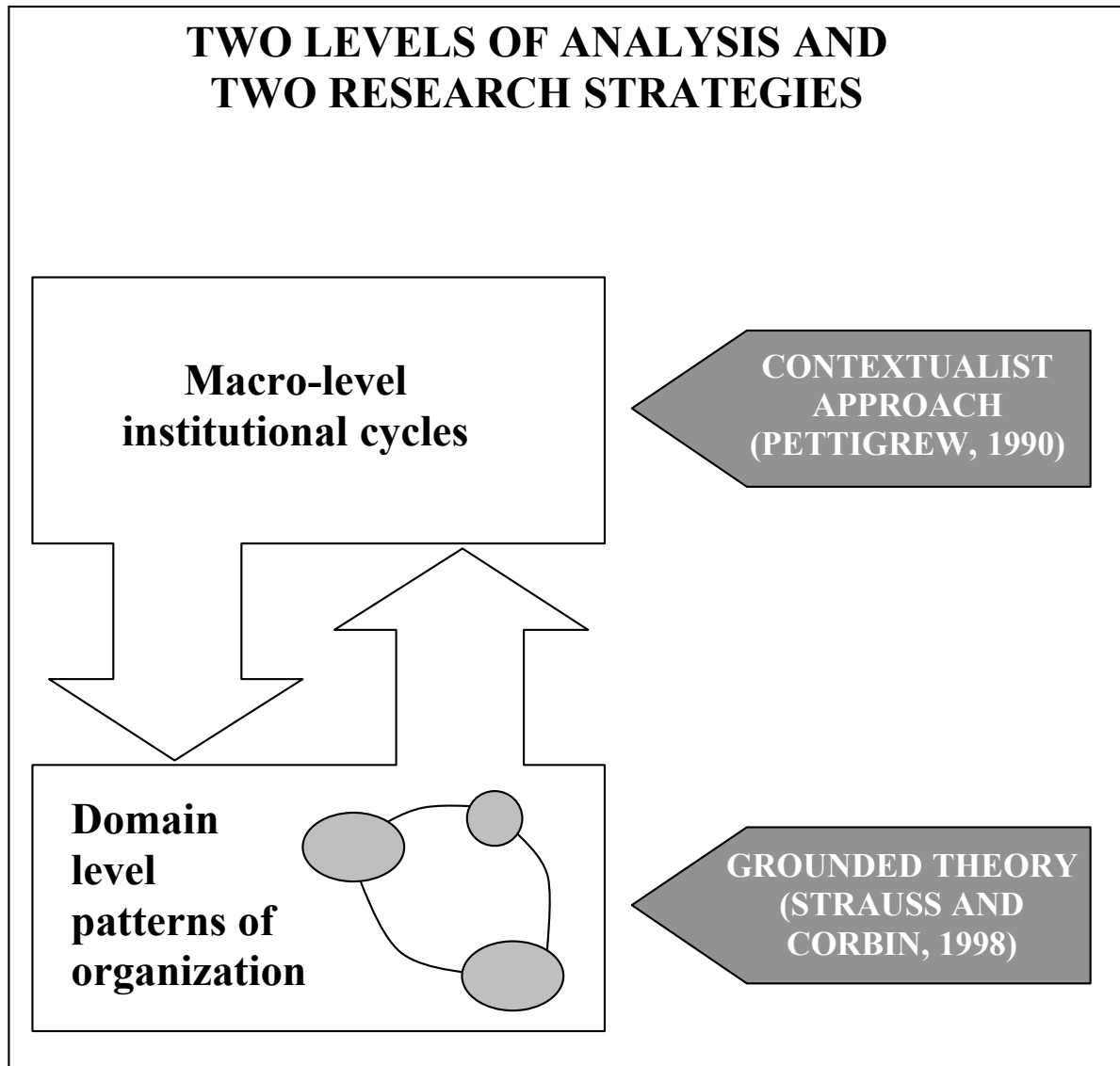
**Table 3.3: Strengths and limitations of contextualist and grounded theory strategies**

| <b>Strategy for analyzing data</b>   | <b>Contextualist strategy (Pettigrew, 1985; 1990)</b>   | <b>Grounded theory procedures (Corbin &amp; Strauss, 1998)</b>   |
|--------------------------------------|---|--|
| Levels of analysis                   | Understanding macro-level phenomena: understanding changes in institutional, economic, and social context over a long period of time. Understanding macro-micro connections.  | Micro-analyzing individual and organizational level phenomena such as interpretations and emotions of different individuals or groups going through a process of change. A bottom-up approach: from lower to higher levels.  |
| Phenomenon studied                   | How did the centralized management regimes between 1877 and 1999 work? How were the relations between organizations? What were the effects of the management regime on the domain? What were the main characteristics of institutional changes?                       | How do interorganizational collaborations unfold in the 1996-1999 period?  |
| Data Requirements                    | Data from various levels of analysis and from various sources.  | A large number of comparable micro-level incidents all richly described.   |
| Data                                 | Archives; books on Mexican natural resource management regimes, on the national situation, interviews with local “past” actors.   | Detailed interviews with current actors.   |
| Methods for analyzing data           | “Compacting” macro-level documents into thematic narratives.<br>1. Classifying documents;<br>2. Summarizing documents as different sources;<br>3. Comparing summaries;<br>4. Building an analytical chronology;<br>5. Building narratives under “umbrella” questions. | Having theory emerge from micro-analysis of data:<br>1. Establishing free categories;<br>2. Comparing data;<br>3. Gradual emergence of patterns that become process theories and categories, with dimensions and properties. |
| Limitations                          | May end up with an idiosyncratic story with limited theory building.<br><br>Weak at understanding of micro-phenomenon.  | Less adapted for understanding larger macroscopic processes.   |
| “Final product” in this dissertation | Chapter 4: Institutional cycles (1877-1996).  | Chapter 5: Patterns of organizing (1996-1999).   |

Based on Langley (1999), pp.695-700; Pettigrew (1990); Strauss and Corbin (1998).

I first analyzed historical and contextual data using the contextualist approach and then used grounded theory methodological procedures to analyze micro phenomena. Figure 3.1 summarizes these two research strategies according to the two levels of analysis.

**Figure 3.1: Two levels of analysis and two research strategies**



### **3.6.1. Exploring the macro-level: contextualist research.**

Pettigrew (1990) suggests that one begin an inquiry with broad research questions aimed at understanding the context. The variety of data sources, forms, and content corresponds to this concern. Most of this data are written documents collected before, during and after the fieldwork. They include books, pamphlets, and archival data. More than 150 documents comprising more than 10,000 pages were gathered on the historical and broader context of the collaborations. These documents, grouped by theme, are listed in Appendix 3.1.

I proceeded through the following steps to compile and analyze these data: (1) classifying and scanning documents; (2) building an analytical chronology; and (3) writing up historical/descriptive cases.

#### **3.6.1.1. Classifying and scanning documents**

I first classified these documents by themes. I found it especially useful to build thematic tables to order documents. Table 3.4 on the history of the management of the forests of Tlalmanalco is provided as an example of such a thematic table. Among these documents, the most relevant documents were summarized.

**Table 3.4: History of management regime**  
(Secondary data: published books and articles)

| Author, year   | Key subject   | Argument   | Level of analysis                            | Contributions for chapter?  |
|--|---|--|--|---|
| Alvarez Icasa, 1993  | Deterioration of ejido forests                            | Deterioration as the result of non appropriation by ejidatarios; they are at the bottom of local, regional and national structures of domination.  | Michoacan                                    | System of explanation on deterioration  |
| Hinojosa Ortiz, 1958   | Analysis “mismanagement” of the forests in Mexico in 1955 | Forest destruction as a function of:<br>1. Structures of decision and cost/benefits allocations unfavorable to local dwellers;<br>2. Lack of scientific management.  | National                                     | Provides information on practices before 1955.  |
| Simonian, 1995   | History of conservation in Mexico 1520- 1995              | The history of conservation in Mexico as an ever reformulated struggle between rational -dominant vs. “irrational “ dominated groups. Forests as central stakes in the history of conservation in Mexico.                      | National                                     | Identifies national historical phases and trends, explains debates, conflicts and policies (forest laws)                              |
| Chambille, 1983  | Management regime of a <i>Forestal</i> . (Atentique)      | Farmers - firm relations; extractive practices   | Jalisco - very similar to SR                 | Provides more information on the relationships between the <i>Forestal</i> , <i>Caminos</i> , <i>Ejidos</i> , Landowners, and Company |
| Velazquez Cruz, Ernesto, (1965)  | National paper industry in 1965                           | Issues of supply for pulp and paper industry.  | National                                     |   |
| Lenz (1991)  | History of paper in Mexico                                | Supply problems and how they were addressed in different points in history.  | National but evokes situations similar to SR |   |
| <i>Unidad Industrial de Explotación Forestal de San Rafael</i> , (1976a), <i>Unidad Industrial de Explotación Forestal de San Rafael</i> , (1976b) | Inventories and plan for logging management.              | (1) Focus on timber and extractive practices and management.<br>(2) Deals with numbers and maps the evolution of the “resources” (m3 per year, etc,...) and on management practices, methods used at different points in time. | SR   | Chunks of “discourses”, pretty dreary, pretty dry – but representative of the engineers’ thinking                                     |
| <i>Unidad Industrial de Explotación Forestal de San Rafael</i> , (1986)  | Plan for logging management.                              | Same as Lenz.  | SR   | Same as above   |
| Klooster (1997) <i>Cuadernos agrarios</i>  | Overall evolution of forest and forest management         | How to destroy the forests: the <i>ejido</i> problem   | National level, aggregate numbers            |   |

Once documents are gathered and organized into a more manageable form, Pettigrew (1990) suggests the production of a variety of intermediary research outputs to narrow down the scope of the study. These outputs include (a) an analytical chronology; (b) largely historical/descriptive cases.

### 3.6.1.2. Building an analytical chronology

Once these documents were compressed, I built a chronology of the period between 1877 and 2000. An excerpt of this chronology is included in Table 3.5. This chronology includes all types of information from the various documents.

**Table 3.5: Chronology**

The table contains two columns. The first column contains a period of 5 years. The second column contains the facts and the source. The chronology encompasses the period 1860-2000 and is divided into eras of 5 years. Only ten years are shown here.

|           |   |
|-----------|---|
| 1931-1935 | <p>1931 - 1970: around 100 tons a day, 200 types of paper. <i>Crisoba, 1982</i></p> <p>1932: the company contaminates the river; large effluents of <i>lejia</i> (bleach) and water becomes less oxigenated. <i>HG 305</i></p> <p>1934: the <i>Ejido de Tlalmanalco</i> is established and owns 10,000 hectares of forests formerly owned by the SR (BF, 22)</p> <p>1935 - November: Cardenas establishes <i>PIPSA</i> ( Productora y Importadora de Papel S.A., State owned paper importing company) to end the monopoly of the SR on the supply of newsprint in Mexico. SR converts its machines into commercial paper instead, which increases profits. <i>PIPSA</i> starts in commercial paper also; SR (JdLM) readjusts labour and fires some workers in SR. <i>PT 7</i></p> <p>1935: According to a study, the company has supply problems as a result of land reform and the destructions caused by the revolution. <i>BF 22</i></p>   |
| 1936-1940 | <p>September 9, 1936: Strike: Main motives are wage and length work issues. The strikers are with Cardenas. <i>PT</i></p> <p>At the end of the strike, the TU part of the <i>CTM</i> (<i>Confederacion de los Trabajadores Mexicanos</i>) becomes the other player in the SR community. The company accepts most claims: 8 hour long day of work, pay increase, yearly bargaining with the new trade union. Many mayors of Tlalmanalco will be former TU general secretaries. <i>AM 62</i></p> <p>1937: As a result of the strike and by action of Cardenas, workers ask JdLM to be expelled from Mexico. <i>BP</i></p> <p>1937: The village of SLT complains that the water it receives from the factory through a canal is so dirty that it is not usable for domestic uses. <i>HG 305</i></p> <p>1938: Train excursion to SR and trekking to the volcano are advertized in Mexico City newspapers.</p> <p>1938: price of foodstuff is as expensive as in MC <i>CDI, 1938</i></p> <p>1938 The company owns large forest lands. It has its own <i>Seccion Forestal</i> that supplies the factory. Total world consumption is around 70-80 million m3. <i>CDI, 1938</i></p> <p>1938: The secondary school <i>J. Encarnación Cordoba</i> is established. <i>Crisoba 1982, AM 56</i></p> <p>1939: the SR plant has 8 machines and manufactures paper for books, magazines, fotogravures, color papers and cardboard of all types. <i>Crisoba, 1982</i></p> <p>1938: It has 8 machines: 3 can produce 50,000 kg of paper per day, or twice the newsprint consumed in Mexico. The other 5 machines produce 40,000 kg of paper a day. <i>CDI, 1938</i></p> <p>1938: A decree establishes the Itza-PopoPark above the altitude of 3000 m, after which point forests can not be exploited.</p> |

**Sources of Published material:** NR 1999: Noyola Rocha (1999); *Crisoba, 1982*; LEF: Laura Espejel: *articulo fotografia*; GL: 1998, *Industrialization in the State of Mexico*; CDI 1938: *Club deportivo Internacional 1938*; HG: *Huerta Gonzalez*; BP: *Bodas de Plata del sindicato*; PT: *Peticion de los trabajadores, 1936*; Mono: *Monografia 1984*; MAAP - Marco Antonio Anaya Perez; AM : *Azucena Mirango*.

### 3.6.1.3. Writing up historical/descriptive cases

I wrote three case studies in the form of papers on the local context. These three papers were presented at scholarly conferences. The aim of the two first papers was to understand the history of the San Rafael Company, which dominated the management of natural resources in the 1893-1991 period. The first (Raufflet, 2000) focuses on the inertia of the company in face of market changes while the second (Raufflet, 2001a) identifies three periods of power relations between the firm and the community over the 1893-1991 period. The third paper (Raufflet, 2001b) investigates the evolution of the relationships between the San Rafael pulp and paper company and the *ejidos* on the management of the forests, over the 1947-1991 period.

I faced numerous challenges in documenting from interviews parts of the institutional cycles for which written information was not available. For instance, I could not document the terms of exchange of the supply contracts between the factory and the ejidos in the early years of the ejido (1934-1947) as no documents were available in the ejido archives. Various authors and researchers (Hinojosa Ortiz, 1958; Chambille, 1983; Simonian, 1995; Huerta Gonzalez, 1994; Alvarez Icaza et al., 1993) interested in the history of the management or conservation of forests in Mexico point out the overall deficiencies of the archives. If documenting the overall history of ejidos in Mexico is a hard task, writing the specific history of the Ejido de Tlalmanalco is not less so. The first reason deals with the fact that most of the archives on the administrative history of the ejido are missing. Informants explained that this was because some past corrupt leaders had destroyed them in order to prevent future judiciary actions. The archives being of limited help, I then interviewed ejidatarios and older dwellers. This is where the second problem arose, since very few informants actually had memory of specific dates and facts. I decided to systematically cross-check data from at least three sources: one being external and one being internal to the ejido. For instance, to reconstruct the sequence of the presidents, I counted backwards with a first group of informants. A few days later, I did the same exercise with a second group. I finally checked with older local dwellers

who were not ejidatarios. I only present information in this study I could put together through at least three separate sources from internal and external informants.

**Table 3.6: Intermediary papers with a historical focus**

| <b>Title of the paper</b>   | <b>Purpose of the paper - main research question</b>   | <b>Presented at the Conference</b>   |
|---|--|--|
| The rise and fall of San Rafael.  | Exploring the reasons for the long lasting success and eventual demise of the San Rafael pulp and paper company.           | History Division - ASAC - IFSAM, July 2000, Montreal.  |
| Exploring the nuances of paternalism: the case of San Rafael (1893-1991). | How firm/local community and firm/labor relations evolved.   | Research group: “Justice and Multinational Corporations in developing areas”, Montreal, December 2000. |
| A longitudinal study of corporate environmental performance.              | Understanding the evolution of the relations between the company, the <i>forestal</i> and farmers in the 1947-1991 period. | History Division - ASAC 2001, London, Ontario.   |

In summary, I have used the recommendations of the contextualist methodological approach in order to make sense of the context and of the connections between the context and the current collaborations. Based on Pettigrew’s prescriptions (1990), data were compiled in three main steps going from broad to narrower scopes: (1) overall classification and summaries of documents; (2) construction of chronologies; (3) write-up of descriptive case studies on specific dimensions of the context and on the collaborations.

### 3.6.2. Exploring the micro-level: grounded theory procedures

In this section I explain how I conducted grounded theory procedures for analyzing data. I proceeded in the following steps.

#### Selecting interviews

I first divided the interviews according to the four units of analysis: the four collaborations. I chose interviewees who had played a key role in the collaborations and interviewees who had positions in various organizations engaged in each collaboration. For instance, for the logging plan, I micro-analyzed interviews from both farmers and forestry engineers. In all, 22 interviews were micro-analyzed.

**Table 3.7: Interviews “micro-analyzed”**

|                                       | <b>Collaboration 1:<br/>Logging plan</b>                  | <b>Collaboration 2:<br/>Municipal<br/>Development Plan</b>  | <b>Collaboration 3:<br/>Reforestation<br/>campaigns</b>  | <b>Collaboration 4:<br/>Sierra Nevada</b>   |
|---------------------------------------|---|---|--|---|
| Number of interviews “micro-analyzed” | 3 with forestry engineers;<br>2 with <i>ejidatarios</i> . | 2 interviews with the representative of municipality<br>1 with a head of municipal dept.;<br>4 with leaders of civil associations and researchers | 2 interviews with head of Dept. of Ecology and main organizer of the campaigns;<br>Participants (workers);<br>1 interview with 1 Forestry engineer;<br>1 interview with representative of <i>Probosque</i> . | 3 with leaders,<br>1 with a project leader,<br>1 with academic (UAM).<br>1 with participating <i>ejidatario</i> . |

#### 3.6.2.1. Analyzing an interview

I first read the interview. I read and identified themes using the journalist’s questions (Who? What? When? How? Where?) following the procedures of open coding proposed by Strauss and Corbin (1998). As I coded data, I also “memoed” on the overleaf page of each interview. Once the interview was analyzed, I built a table of the pieces of text from the interview with five columns (*1= housekeeping; 2 = code; 3= subcode; 4= actual chunks of the interview; 5= in which paragraph*). This table summarizes an interview,

and is a practical device suggested by Dorado (2001) for compacting data. The code is, for instance, the organization (a locus of action) and the subcode refers to an aspect of or a department within the organization. An example of this table is provided in Appendix B.

#### **3.6.2.3. Choosing other interviews**

For each collaboration, I analyzed one interview to represent each organization involved. To flesh out the image of the collaboration, I often chose a second interview. The criteria for the selection of that second interview was that it offered a different perspective from the first. Combining the analysis of the interviews about a given collaboration, I was able to build a process model of the collaboration (who did what/ when/ with whom/ with what outcome?). Being aware that I was reconstructing the process of these collaborations - identifying stages - helped me focus on identifying the categories with their properties and dimensions as well as on the links between them.

#### **3.6.2.4. Identifying the central categories of the unit of analysis**

Once I built the tables and identified the links between the categories, my objective was to identify the central themes or categories of the collaboration. I did so by cutting up all the pieces of information written on paper and displaying them on a large desk. This is one of the most stressful stages of the analysis because there were large piles of separate data in front of me and I had to find links between many bits of data that seem unrelated. Using “Post-it” notes in order to group chunks of interviews was helpful at this stage in order to play and explore various ways to combine the data.

For this stage, Strauss and Corbin (1998) propose making a decision on a central category. However, since this study explores dynamics of the domain and not a single collaboration, I decided to keep all the central themes. I discovered between 5 and 8 central themes in each collaboration. These themes are presented in Appendix C.

### **3.6.2.5. Grouping and organizing themes across collaborations**

For this stage, I repeated the strategy used in the analysis of single interviews. I first summarized the central themes of each collaboration in a table. Second, I built links to the themes across collaborations in order to identify themes common to collaborations.

### **Conclusion**

In this chapter, in view of the research questions, I explain the rationale for a domain research focus, the methodological option for case study research (Eisenhardt, 1989; Yin, 1990), the choice of the case of Tlalmanalco, the methods for collecting qualitative data; and the decision to combine two strategies for analyzing data, the contextualist approach (Pettigrew, 1990; 1992) for analyzing macro to micro connections and grounded theory procedures for micro-analysis. These methodological choices have enabled me to reconstruct each collaborations in a rich and thorough way while making comparisons across them possible. Combining these strategies for analyzing process data has also enabled me to connect the historical dimensions of the institutional cycles of forest management as well as the detailed patterns of organizing of the current era of transition. Chapter 4 presents the institutional cycles of forest management over the 1877-1996 period, and chapter 5 details the patterns of organizing in the form of interorganizational collaborations for the 1996-1999 period.

## **Chapter 4: Institutional cycles of forest management in Tlalmanalco (1877-1996)**

### **Introduction**

This chapter presents the institutional cycles of forest management in Tlalmanalco between 1877 and 1996. It identifies the doctrines and policies that have prevailed regarding forest management in Mexico as well as their effects on the local regimes in Tlalmanalco over this period. From a theoretical standpoint, the historical account of the domain of forest management will help us illuminate the interplay between the effects of national decisions – in the form of rules and roles decided according to philosophies – and the micro-processes of “implementation” of these national decisions at the local level— in the form of management regimes as well as on the transition between these institutional cycles.

I am aware that these national policies may reflect international trends and philosophies. The trajectory of Mexican forest management institutions has commonalities with the trajectories of other Latin American countries (Simonian, 1995) or developing areas at large (Ponting, 1991). For instance, the 1910-1920 revolution was simultaneous with the Soviet revolution and there are obvious links between the policy of national park policies in the United States in the first decades of the twentieth century with the Mexican conservation policy in the 1930s under the administration of Cardenas (1934-1940). However, for the sake of clarity, I decide here to focus here on the interplay between the institutional cycles at the national level and the patterns of organizing.

Two elements are important for understanding the Mexican background in which these institutional cycles unfolded. The first one is the quest for ‘progress’ and ‘development’. In the mid-nineteenth century, Mexico was a poor country, had little infrastructure, a narrow market, was politically unstable, and had lost half of its national territory to the United States in the war of 1848-1849 (Simonian, 1995). The ideology of progress – reformulated after WW2 as ‘development’— which prioritized industrial development and consolidation of the authority of the state has permeated forest management regimes

in different ways over the years. Although there was an early awareness in Mexico of the role of forests to maintain ecological and human health, as they prevent droughts and sicknesses, members of the elite viewed forests as untapped reserves of raw materials indispensable for development, for the construction of railroads in the nineteenth century and for construction material and for the production of consumer goods in the twentieth century (Hinojosa Ortiz, 1958). At the same time, the elite viewed the indigenous populations, who, until the mid-nineteenth century held forests in communal systems<sup>6</sup> inherited from pre-hispanic times, as irrational and unsustainable forest users. Thus, the elite defined its role as educators of the indigenous population and used various means to disown the indigenous population from the forests in order to ‘manage the forests rationally’ and thus develop the Nation’s industry (Simonian, 1995; Simon, 1998).

The second element concerns land tenure. All land and water in Mexico belong to the Mexican Nation. However, the Nation has the right to transmit its ownership (*dominio*) to individuals, or collectives. Private property is officially constituted as edicted by public interest and the state retains the ultimate power to restrict the rights to holders in the name of the national interest (Araya Perez, 1997, p.199). This applies especially to forests in which, “owners can dispose of their resources only according to the modalities and limitations seen as adequate for the protection and rational management<sup>7</sup> of the forest resources” (Hinojosa Ortiz, 1958, p.23).

The Mexican state has repeatedly used these two levers – the ideology of progress/development and conditional land status – in the different institutional cycles of forest management. While the quest for development has provided the ideology, ultimate control of land tenure has represented a tool used by the State to ‘implement’ these policies at different moments (Simonian, 1995).

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<sup>6</sup> Moctezuma (2001) mentions the system of *calpullis*, as basic communities based on associative links, that were productive and social units in which kinship relations were dominant, in which land was owned in common, with a permanent family ascription for using it. These *calpullis* were a form common to the Mayas, the Toltecs, the Aztecs and the Tlascaltecas.

<sup>7</sup> This land tenure system is different from the system of United States that prioritizes individual land ownership over that of the Nation.

#### **Four institutional cycles**

This chapter presents the four institutional cycles in the evolution of forest management between 1877 and 1996. In the first cycle, 1877-1910, national policies motivated by a laissez-faire economic doctrine promoted elite entrepreneurship and market mechanisms to enhance a more intensive use of forest resources. In Tlalmanalco, these policies led to land concentration in favor of haciendas and the San Rafael Company, a powerful pulp and paper company which needed forests for a steady timber supply. The 1910-1920 revolution initiated the second institutional cycle of land reform and communitarism. Post-revolutionary land reform established ejidos, farmers' cooperatives, as land holders, which continued the contracting of timber with the San Rafael Company. The third era, 1947-1991, epitomized scientific forest management based on scientific forestry techniques for the industrial use of timber: a 1947 presidential decree strictly regulated forest management and constrained the ejidos to a position limited to compliance without access to decision-making and economic incentives in forest management. Finally, the bankruptcy of the San Rafael Company in 1991 enabled a new era based on participation. Table 4.1 summarizes the central dimensions of these eras.

**Table 4.1: Summary of the four institutional cycles of forest management (1877-1996)**

| <b>Institutional cycles.</b>             | <b>Foreign Direct Investment/Elite (1860-1910)</b>  | <b>Communitarism (1910-1940)</b>  | <b>State-led Industrialization (1940-1991)</b>  | <b>Towards community and Participation (1991-??)</b>  |
|--|---|---|---|---|
| Philosophy for forest use                | Scientific management. intensify forest extraction. Laissez-faire economics.              | Communitarism, conservation for the Nation.   | Industrialization and rationalization of forest management. Focused use of forests: timber only.                        | Social inclusiveness, social appropriation and variety of uses.   |
| Role of the center - national government | Provide incentives for investors.   | Allocates land and provides legal framework and protection.   | Tight control: determines rules, roles and specific forest management methods.  | Provides resources: material, legal, and expertise.   |
| Dominant organizational template,        | Hacienda  | Ejido   | Forestal: affiliated with industrial users and national agency.   | NGOs, connections between organizations.  |
| “Heroes”                                 | Investors: Hacendado, yeoman farmer, agricultural entrepreneur. Industrial entrepreneurs. | Small landholders members   | Forestry engineers holding legal/technical expertise.   | Convenors, charismatic leaders, boundary spanners.  |
| Coordinating mechanism.                  | Master-servant relations (Selznick, 1969)   | Participation, democratic design parameters to enhance democratic decision-making.                                      | Technical expertise, formulation/implementation.  | Open processes, grassroots organizing, vision-building – or confusion.  |
| Membership - included                    | Masters: investors and hacendados   | Small group /members engaged in land reform movement after the revolution (1910-1930) or co-opted later by ejidatarios. | Factory and forestry engineers.   | Theoretically, everybody willing to engage.   |
| Membership - excluded                    | Farmers.  | Non ejidatarios.  | Non ejidatarios, ejidatarios.   | Theoretically, no-one.  |
| Blind angles                             | Social and economic exclusion of the large majority.                                      | Too tightly designed: frequent problems of accountability and governance. Dependency vis-à-vis central government.      | Reinforces lack of interest of ejidatarios for forest management and internal organizational pathologies. Non-learning. | Its “unstructuredness” may lead to co-optation for the maintenance of status quo and the elusiveness of central concepts (myths of “community” and “participation”) may lead to vulnerability and deviations. |

Elaboration by the author.

## 4.1. The cycle of elite entrepreneurship (1877-1910)

### 4.1.1. Management philosophy

Porfirio Diaz became president of the Mexican Republic in 1877 and his rule until 1911 was an unprecedented era of relative stability referred to as the *Porfiriato*. His policy prioritized large public works such as road and railway construction and industrialization through foreign and national direct investments. The *cientificos*, a group of the urban elite, became his brain trust. Inspired by Auguste Comte's positivist view of progress<sup>8</sup>, they advocated the rationalization of the use of natural resources as the way to foster national economic industrialization. They viewed Mexico as a country endowed with rich raw materials that could transform Mexico into an industrial giant would they be systematically exploited with the aid of an efficient transportation system and capital investments (Simonian, 1995, p.61). This mainly urban elite thus represented the rural indigenous populations as obstacles to this scheme: the indigenous were irrational exploiters of the forests, low intensity farmers and thus mainly responsible for these 'vacant land areas'. In addition, the *cientificos* also had contempt for forests as empty lands without use for agriculture (Simonian, 1995, p.61).

Progress, as defined by the *cientificos*, was then to be enacted by a series of laws on the use and ownership of land and forests which reinforced the tendencies for the expropriation of land from the indigenous populations. The Spanish colonial rule (1521-1821) had left *corporaciones*, communal management schemes held by the indigenous and the Catholic Church, as the main land and forests holders. In 1856, the Lerdo law had already forced *corporaciones* to renounce to the lands that they were not using as part of their operations. Under the *Porfiriato*, the 1883 law aimed to replace the "inefficient" Indian cultivators with the "productive" yeoman farmer, mainly of Spanish descent and member of the elite through the issue of land delimitation (Simonian, 1995). In Mexico,

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<sup>8</sup> Simonian, (1995, p.62), on the *cientificos*: 'According to the *cientificos*, the society could be scientifically run, but they defined progress not in terms of defining the conditions of humanity but in terms of unleashing investments to further development and order, which in the Comtean system was to be tempered by a degree of liberty, now meant protecting the interests of a rapacious elite.'

at that time, most of the land was not delimited. The 1884 law then stipulated that an individual or company that would identify and delimit “empty” or “unused” land (*tierras baldias*) would become the owner of one third of the land delimited and would receive special conditions from the state to acquire the remaining two thirds. This law led to higher land concentrations in the North and South East (Araya Perez, 1998, p.55).

#### **4.1.2. A new role for the State**

The role of the State in this laissez-faire economic policy and ‘rationalization of forest resources’ consisted of providing favourable conditions to elite and foreign investors in the form of fiscal incentives, such as legal and tariff protections, or unlimited access to natural resources in the form of concessions.

#### **4.1.3. Organizational template**

The organizational template promoted by these national policies was the hacienda led by a member of the elite, and after 1893 for the case of Tlalmanalco an industrial factory, led by large investors. As haciendas<sup>9</sup> concentrated land from small land holders, poor farmers became tied to the productive system and to the social unit of the hacienda. Araya Perez (1998, p.98), a historian of the region, describes the situation of the farmers in a hacienda of the region at the turn of the century:

‘The labourer (*peon*) was tied in the hacienda through a payment in advance system. Since salary was insufficient, the peon and his family were obliged to live on forced loans that gradually put him into deeper levels of debt until he and his family, because of their debts, had to live in the hacienda. The hacendado then conceded them a small piece of land where they could cultivate

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<sup>9</sup> Simonian (1995, p.64) describes increasing land concentration from 1877 to 1911 in Mexico:

‘As during the colonial period, the expropriation of Indian lands had helped precipitate the Indian’s rampant destruction of the forests. The difference between the colonial and national periods, however, was that officials now stood firmly behind the ones who wanted to expropriate Indian lands’. ‘During the *Porfiriato* (1877-1911), the expropriation of Indian lands reached a fever pitch. The administration gave the *hacendados* and foreign investors the right to displace the Indians so that large scale agriculture could replace subsistence indigenous farming’ (1995, p.61).

maize, beans, and *chile* for family consumption. The family also had to do unpaid forced labour for the *hacendado*.<sup>7</sup>

In 1893, the *Compania de papel San Rafael y anexas* was established in San Rafael, then a hamlet of Tlalmanalco. Its investors were both foreign<sup>10</sup> and national, including Porfirio Diaz's own son. The comparative advantages of this location for the investors included: (1) abundant raw materials: water from the glaciers and wood from the forests of the Itzaccihuatl volcano; (2) a favorable climate with an average temperature of 12 °C that made the pulp and paper manufacturing processes possible in a tropical country; and (3) proximity to Mexico City, the main national market (Arango Miranda, 1997).

Before the factory, forests and water were goods used extensively by the community, under the jurisdiction of the municipality. However, various presidential decrees (1893, 1897) and firm-state agreements (1897) bypassed these communal rights and accorded usufruct of the forest and water to the factory. Local dwellers contested the 1893 presidential decree that gave an exclusive concession for water and timber to the factory; however, the influence of the factory largely prevailed over the interests of a small, mainly rural group, and their protest was in vain (Huerta Gonzalez, 1993).

Then, in 1897, the company obtained concessions on forested areas and acquired haciendas with forested areas and started plantations and the construction of roads into the forests to secure its lumber supply (Huerta Gonzalez, 1993; Arango Miranda, 1997, p.44). Simultaneously, the firm built 16 km of canals to guarantee its steady supply of water and hydro-power. Between 1897 and the 1910-1920 revolution, the company proclaimed its environmental "pro-tree" culture given that its long-time leader was a forestry engineer by training. For instance, in various documents consulted it was proud to claim that it contributed to maintaining and nurturing the forest since "for each tree logged for industrial needs, ten were replanted" (Huerta Gonzalez, 1993). The firm had its

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<sup>10</sup> In 1894, its main shareholders were: Tomas Braniff, 64, American, José Sanchez Ramos and Porfirio Diaz Jr., Mexicans, Henry C. Waters GB, Enrique Tron, Auguste Genin, Jules Beranda, Léon Honnorat, Alphonse Michel, Luis Barroso Arias and Jean B. Ebrard, French (Huerta Gonzalez, 1993; 288, Arango, 1997, p.36).

own *Seccion Forestal* (Forest Department), the department specialized in the supply of timber led by forestry engineers, who designed logging plans and monitored plantations.

#### **4.1.4. Boundaries of membership**

The implementation of these national policies favored the national elite and foreign investors and were disfavorable to the majority of the local population. At the end of the nineteenth century, land concentration in Tlalmanalco was at its peak; in this mainly rural and agricultural area, less than 8% of the population owned land and the majority worked in extremely precarious conditions as labourers on large farms, or *haciendas*. This degree of land concentration in Tlalmanalco reflected the national situation: in Mexico, more than 95% of the land belonged to less than 2% of the population, mainly absentee landlords (*hacendados*) (Araya Perez, 1998). Araya Perez continues (1998, p.53):

‘The rural population was vulnerable to the natural cycles. The 1910 winter was cold and the subsequent harvests were low. This led to an agricultural crisis. Mexico had to import maize. This crisis, during which maize became an object of speculation led to a great discontent in the rural population and adherence to the Zapatista armed movement.’

#### **4.1.5. Effects**

The years of the Porfiriato brought a first wave of industrialization through foreign and national investments, but the land concentration it generated also led to the revolution (Haber, 1989). In Tlalmanalco, the factory was occupied by the Zapatista forces for more than four years, and forest exploitation was interrupted. The 1912 San Rafael Company annual report (p.5, my translation):

‘The exploitation of the forests of Santa Catalina and Apasco has been suspended. The circumstances have been the same, if not worse than in 1911. Fires, rebel attacks and destructions have occurred over and over in these properties. (...) Tools have been destroyed. Part of the plantations have been destroyed. None of our employees could stay and work in these areas since these areas are infested with thieves.’

**Table 4.2: Cycle of elite entrepreneurship**

| <b>Institutional cycle</b>                 | <b>Elite entrepreneur (1877-1910)</b>  |
|--|--|
| Philosophy for forest use                  | Scientific management. intensify forest extraction.<br>Laissez-faire economics.                          |
| Role of the center - national government   | Provide incentives for investors.  |
| Dominant organizational template, “Heroes” | Hacienda<br>Investors: Hacendado, yeoman farmer, agricultural entrepreneur.<br>Industrial entrepreneurs. |
| Coordinating mechanism.                    | Master-servant relations (Selznick <sup>11</sup> , 1969)   |
| Membership - included                      | Masters: investors and hacendados  |
| Membership - excluded                      | Servants: farmers  |
| Effects                                    | Social and economic exclusion of the majority  |

#### **4.2. A vision and a tool for community-based management: the *Ejido de Tlalmanalco* (1934-1947)**

The 1910-1919 revolution affected the factory in various ways. Epidemics hurt communities, the local population decreased, and forests were damaged. In the 1920s, the factory recruited from more distant areas. Its installations were also damaged by the Zapatistas’ four year occupation. It took until 1921 for “normal” working conditions to resume.

The reforms dealt mainly with two aspects of the 1917 Constitution. Article 27 of the constitution enacted land reform. *Ejid*os, peasant community organizations established as collective owners of the land, gradually replaced haciendas as main owners of the land.

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<sup>11</sup> Selznick (1969) describes master-servant relations as: ‘(These) Relations are most often life long relations that involved the commitment of the whole person. The servant is trained by the master and lives at the master’s house. Custom and public policy largely determined the implicit framework for mutual rights and obligations. As Selznick puts it, (1969, p.123) ‘*it was not contemplated that individual parties would design their own relationship.*’

#### **4.2.1. Philosophy: land and freedom, the birth of the ejido**

The 1910-1920 revolution led to land reform and promoted community-based development. Article 27 of the 1917 Constitution officially recognized the rights of the farmers to hold the land that they cultivated and defined the modalities of its distribution. Land was to be distributed collectively to communities. As Ramon Betteta, a member of President Lazaro Cardenas' (1934-1940) think tank, stated:

We have dreamt of a Mexico and small industrial communities, electrified with sanitation, in which goods will be provided for the purpose of satisfying the needs of the people, in which the machinery will be employed to relieve man from heavy works and not for so-called over production (Simonian, 1995, p.86).

#### **4.2.2. Role of the State**

In the post-revolutionary context, the role of the state was to allocate land and create a regime of agricultural subsidies headed by the Secretary for Agriculture and Land Reform.

#### **4.2.3. Organizational template**

The *ejidos*<sup>12</sup>, as farmers' cooperatives, embodied<sup>13</sup> this ideal of community-based ownership and encompassed economic, social, ecological and symbolic functions. Land reform in the 1920s and 1930s allocated most of the land previously owned by haciendas to *ejidos*, farming cooperatives, as collective holders. Farmers organized into a population nucleus could apply to the government for a grant of land, or *ejido*, for their members. The economic function of the *ejido* was to provide farmers with a livelihood for its

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12 Both ejidos and bienes comunales are farmers' cooperatives and have collective, democratic decision making processes. However, the difference between the two forms is their origin. While bienes comunales date back from before land concentration at the end of the 19th century, ejidos were established as a result of the post-revolutionary land reform.

13 This enthusiasm for the ejido, as a new social organization with the potential to develop rural areas using community management was also reflected in early works in rural anthropology/sociology that focused on the promises of land reform for rural development: see for instance the works of Robert Redfield in Tepoztlan (1926).

members, and employment opportunities for locals in general. The social mission of the *ejido* was to use this community-based management scheme to contribute to the social welfare of its members, and, as much as possible, to the local community. This included the reinvestment of *ejido*'s benefits into education and the social welfare of the community in the form of collective equipment such as schools, dispensaries, or community halls<sup>14</sup>. In Mexico, all land belongs to the Nation, and forested areas allocated to the *ejido* were to be maintained in the name of national interests. Thus, the ecological mission of the *ejido* was to conserve the natural resources they were allocated and to develop their organizational capacity to maintain forested areas. Finally, the decision for land reform through collective ownership and land management in the form of *ejidos* – as opposed to a land reform based on the distribution of plots to households for instance – reflected a very pressing concern among the claims of the revolutionary leaders for the continuity with the pre-hispanic tradition of collective land management (Moctezuma, 2001).

#### 4.2.3.1. The Ejido de Tlalmanalco

Given that in Tlalmanalco, arable land was far more valued than forests, the first *ejidos* that applied for land were allocated most of the arable land<sup>15</sup>. The last *ejido* established was the *Ejido de Tlalmanalco*<sup>16</sup>, established in 1934 by 130 households on 196 hectares of arable land and about 9,825 hectares of forested area (UAM, 2000, p.101).

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<sup>14</sup> For instance, the Ejido de San Juan Atzacualoya, an ejido located in Tlalmanalco, has contributed to building an urban area, two bridges, a soccer field, and to buying a tractor for community use (UAM, 2000, p.105).

<sup>15</sup> The Ejido de San Juan Atzacualoya was established in 1923 with about 200 ejidatarios on 519 hectares of arable land and 362 hectares of forested land, San Lorenzo Tlalmimilolpan in 1926 with 196 hectares and 41 ejidatarios, Santo Tomas Atzingo with 70 on 112 hectares of arable land and 303 hectares of forests, San Antonio Tlaltehuacan was allocated 71 hectares of arable land and 374 hectares of forests for 94 farmers (UAM, 2000, pp.101-105).

<sup>16</sup> This study focuses on the *Ejido de Tlalmanalco* as it concentrates more than 98% of the municipal forests of Tlalmanalco.

#### 4.2.3.2. Putting community-management to work: design parameters

Design parameters of the ejido in terms of (1) land tenure rights, (2) collective decision-making, (3) membership and (4) institutional affiliation reflected the vision for small scale, community-based land management and development. An *ejido* joins a group of households and plots of land through a formal cooperative organizational structure.

##### ***Land tenure system***

Land reform allocated titles to land use but did not give farmers full property of the land. Land reform allocated households with their titles, which includes the right to participate in collective decisions made by the assembly, to be elected and the right to use a plot of land in modalities to be decided in the assembly within the legal restrictions. While the state most often retained<sup>17</sup> the title to the land, the *ejido* received an indefinite usufructuary title. The land allocated to the *ejido* was divided into two parts. On the one hand, plots of arable land and land for human settlements were distributed to households. On the other hand, “general interest” areas – including forests – remained under collective management and all decisions regarding their use was made under assembly decisions (UAM, 2000; FAO, 2000). In the case of the Ejido de Tlalmanalco, as an *ejido* holding large portion of forests, the presidential decree highlighted its crucial ecological responsibility (Decreto de formacion del Ejido de Tlalmanalco, en *Diario Oficial de la Federacion*, April, 28, 1934, cited in Noyola Rocha, 1999, p.79):

Article 5: Being of public utility the conservation and propagation of forested areas in all the national territory, the benefited community is obligated to conserve, restore and propagate the forested areas contained in the area allocated.

##### ***Collective decision-making***

The decision-making structures of the ejido reflected the concern for implementing democracy and participation in decision-making. The ejido is governed by a general

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<sup>17</sup> Since the 1930, only 600 ejidos - or about 2% - have received usufructuary titles of their lands. The 98% of ejidos work on unclear - implicit - legal bases ( FAO, 2000, p.97). There are about 29,000 ejidos in Mexico which cover about 50% of the territory and concentrate more than 70% of Mexican forests (FAO, 2000).

assembly, a president, an *ejido* board and an enforcement advisory board. The general assembly meets at least twice a year and elects for a three-year-mandate (1) the president (*Comisariado Presidente Ejidal*); (2) the four members of the *ejido* board, respectively responsible for administration and marketing, field operations, processing and maintenance (FAO, 2000); and (3) the enforcement advisory board (*Consejo de Vigilancia*), which oversees the management of the president and of the *ejido* board.

### ***Membership***

The *ejido*'s modalities of individual membership reflected the concerns for the protection of the rights of individual land holders, community-based development and democratic decision-making. To prevent farmers from selling their plots of land under pressure from large land holders, ejidatarios were given use rights only; they did not have the right to sell, lease or mortgage the land (FAO, 2000). These titles have been transmitted across generations. The decision to include new ejidatarios is to be decided by the assembly. In the case of the Ejido de Tlalmanalco, membership increased from 130 in 1934 to 197 in 1991.

### ***Institutional affiliation***

Last, land reform affiliated the newly established ejidos to the Ministry of Agriculture and Land Reform (*Secretaria de Agricultura y de la Reforma Agraria*). The ejidos were accountable to this institutional framework, which has its own aid and judiciary frameworks. The implications of this particular affiliation were that there was no official link of accountability designed between the ejido and the local municipal government and internal problems involving judiciary actions were to be conducted within the Land Reform judiciary system.

#### **4.2.3.3. The first years (1934-1947)**

The new organization that resulted from land reform did not create a major discontinuity in regional forest management; the arrangement of timber supply to the San Rafael Company continued, as practiced since the turn of the twentieth century. The 9,825

hectares of forests allocated to the *Ejido de Tlalmanalco* were already used by the San Rafael company for its supply in timber. After a long interruption (1911-1925) of the plantation, due to the revolution and occupation of large areas of the region by the Zapatista insurrection army, the firm began harvesting timber again in 1925. Although the firm lost formal ownership of more than 14,000 hectares of forests in the region between 1920 and 1934 due to land reform, it did not lose a steady source of timber since most ejidos continued supplying it (Huerta Gonzalez, 1994).

This was also the case for the *Ejido de Tlalmanalco*. Since farmers drew most of their livelihood from land cultivation and animal husbandry and since they had limited economic interest in and knowledge of forest management, they continued selling unprocessed timber to the factory. Forest-related incomes were marginal overall given that their livelihood was dominated by maize cultivation. This gave the factory a sense of continuity of ownership on the forests, although titles had previously been allocated to the farmers. A document edited by the the San Rafael Company in 1938 presents this sense of ownership (Club Deportivo Internacional 1938, p.10, my translation):

It is well known that the supply of pulp and paper companies requires the ownership of vast and numerous forests that ensure the supply in raw materials. (...). These companies with their sustained growth soon will demand lumber in fantastic quantities. And if one does not want such powerful factories to be paralyzed, it is necessary for man to return to the forest to replenish it and to repair the devastation that activities from the past caused to the mountains. Forests – with what forestry science currently teaches us – will no longer be the primitive and wild forests that can be witnessed in certain parts of the world, but a methodical, rational and symmetrical harmony that can already be admired in some parts of Europe.

No mention is made in this document of the land reform that had occurred 4 years before, nor to the fact that the land was held by the farmers and no longer by the factory.

The supply relationship with the San Rafael Company continued; however, motivated by recreational and conservation concerns, a new national policy limited farmers' possibilities with large areas of the forests. In 1938, a presidential decree established the Izta-Popo Park, as part of a national environmental policy to build sanctuaries for wildlife and to develop recreational areas<sup>18</sup> (Simonian, 1995). As a consequence, all areas above

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<sup>18</sup> Simonian (1995, pp.97-101) on the establishment of national parks under the Cardenas administration:

3000 meters located around the volcanoes by the *ejidos* and *bienes comunales* were included in the new park to develop recreational activities, which prohibited logging. In the case of the *Ejido de Tlalmanalco* this area above 3,000 meters represented about 4,019 hectares, or about 40 % of the land allocated in 1934 (UAM, 2000). Farmers did not receive any compensation for this restriction.

The early internal history of the ejido was marked by two events. The first was the assassination of the historical leader, Anselmo Granados, just after the ejido was established in 1934. The second was the emergence of three families that started influencing collective decisions through coalitions. Most leaders in the early years of the organization belonged to one of these families.

#### **4.3. Applying scientific forest management (1947-1991)**

The Cardenas years (1934-1940) accelerated community-based land reform and promoted the recreational use of some areas of forests (Simonian, 1995); however, the policies of the following president Miguel Aleman (1940-1946) prioritized large-scale industrialization and, as a consequence, industrial users of the forests (Hinojosa-Ortiz, 1958).

##### **4.3.1. Philosophy**

In the 1940s, Mexico's fast industrialization required increased volumes in timber, especially for construction and electrification. However, this raw material was rare and expensive, and Mexico already imported large quantities of cellulose and construction

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"Most frequently the criteria were scenery, recreational potential, and, less frequently, ecological value. Parks rarely included the whole ecosystems. (...). Timber exploitation was excluded in the national parks. The centerpiece of the park system was the high coniferous forests of the central plateau. (...). Within the reserves, individuals or groups could not cut trees without the authorization of the federal environmental agency. The Mexican faced a challenging task in administering the parks, (as they) often included areas not owned by the government."

timber. The 1942 forestry law aimed to address these problems (Hinojosa Ortiz, 1958). Simonian (1995, p.111) describes this new national context of industrialization:

‘After 1940, governmental officials channeled natural resources into the industrial sector and industrialized the use of natural resources themselves. Mechanized agriculture using inorganic fertilizers, high yielding plant varieties, and pesticides was heavily subsidized. Dams were built. Forests were allocated to industrial users in order to rationalize their management.

#### **4.3.2. Role for the state**

Since the State had limited means to enforce a policy, it tightened its control on forest management through a regime aimed at favoring industrial users of forest resources that would execute and monitor law enforcement.

#### **4.3.3. Organizational template**

Following the 1942 national forestry law, a 1947 presidential decree established the UIEFSR (*Unidad Industrial de Explotacion Forestal de San Rafael - San Rafael Industrial Forest Exploitation Unit*) – or *Forestal* – which institutionalized and strictly regulated the supply relations between the San Rafael Company and the region’s ejidos—including the *Ejido de Tlalmanalco*.

The decree gave a renewable 60-year concession to the San Rafael Company on the forests of the Izta-Popo area – including Tlalmanalco (Barreto Flores, 1998, p.25). The decree tightly regulated the domain of forest management; it established (1) the mission and institutional affiliation of the *Forestal*; (2) roles and relations between San Rafael, the Secretary of Agriculture, the *Forestal* and the *Ejido*; (3) management methods and the labor process to be used; and (4) the terms of the distribution of the economic incentives from forest management.

#### **4.3.3.1. Mission and affiliation of the Forestal**

The mission of the *Forestal* was two-fold: to supply the factory in timber while maintaining the forests of the Izta-Popo area (UEFR, 1976). Its double institutional affiliation reflected this double mission. On the one hand, it formally depended on the Secretary of Agriculture. This first affiliation gave the *Forestal*'s actions an official stamp and formal authority on forest management at the local level. For instance, some of the *Forestal*'s activities contained attributions state agencies would have had: the *Forestal* had fire brigades and wards and it organized reforestation campaigns. On the other hand, it was a provider of remunerated forestry services to the San Rafael Company; the *Forestal* represented an "outsourced" and official version of the previous *Seccion Forestal* originally internal to the firm.

The areas under the jurisdiction of the *Forestal* were formerly part of the Izta-Popo National Park as well as *ejidos* and *bienes comunales* forested areas. First, the 1947 presidential decree modified the borders of the Izta-Popo National Park from the 3,000 meters altitude line to 3,600 meters, which dramatically shrunk the park area from 89,800 hectares to 25,679 hectares (Vargas, 1998). This 64,121 hectares logging area was joined with 57,000 hectares of forested land allocated by the land reform to the *ejidos* and *bienes comunales*. All together, the jurisdiction of the *Forestal* now extended over 120,000 hectares (UIEF, 1986).

#### **4.3.4. Coordinating the San Rafael, Forestal and ejidos**

##### **4.3.4.1. The domination of the Forestal**

Between 1947 and 1991, the *Forestal* dominated the process of forest management; it formulated forest management while farmers' roles were limited to its implementation. The *Forestal* provided technical services to the San Rafael Company, such as "calculating annual logging volumes, delimiting logging areas, marking trees to be logged, guarding forests, controlling and fighting fires, reforestation, improving eroded soils, and conducting

research on the forest, controlling pests” (UIEF, 1975, p.11). In the 1980s, its staff was made up of 1 director, 1 technical adviser, 3 technical assistants and 5 field assistants, all forestry engineers; 43 permanent employees, 70 temporary workers, 23 temporary labourers (*peones*) for seed collection and about 30 wardens in the fire brigades (Barreto Flores, 1998, p.44). The San Rafael *Forestal* was one of the most prestigious in the country and attracted engineers from all over Mexico (Barreto Flores, 1998). In addition, physical access to the forested mountains being a constant obstacle, the *Dirección de Caminos* (Roads Department) was established as a separate entity in 1966 to build roads into the forests.

#### **4.3.4.2. Establishing management methods: implementing scientific techniques**

The presidential decree also regulated scientific forestry methods for managing the resources. The Federal Secretary of Agriculture decided on the methods to be used in the whole nation. An excerpt from a 1976 report highlights the rationale behind the use of these scientific forestry techniques (Forestal, 1976, p.13):

It is only through an up-to-date knowledge of the natural resources that rational management will be possible. For this reason, it is indispensable to rely on the information that allows the detection of changes that such resources face, under the positive action of its cultivation, protection and development (*fomento*), as well as under the negative actions such as plagues (pests), illnesses, irrational pasture, fires and illegal logging that occur even when the engineer develops special efforts to prevent them.

Forestry engineers conducted forest inventories with different forestry methods decided at the Federal level by the Secretary of Agriculture in 1948, 1965, 1976, and 1986. However, the meaning of “scientific and rational method” changed slightly over time; and between 1947 and 1991, at least three methods were used with three different points of focus decided nationally. *Forestal* reports consulted do not mention the method used between 1948 and 1964. Following national regulations, the method used by the *Forestal* between 1965 and 1972 was the *Método Mexicano de Ordenamiento de Bosques* (Mexican Method of Forest Planning). Imported from Northern Europe, it consisted of selective logging (*aprovechamiento*) of ill-formed trees, leaving well-formed trees for

forest regeneration. The *Método de Desarrollo Silvicola* (Method of Forest Development) was used between 1973 and 1985, and consisted of practicing logging for regeneration and protection. In the last period (1985-1991) the *Manejo Integral del Recurso Forestal* (Integral Management of the Forest Resource) intensified extraction. However, all together, clear cutting was not practiced; methods were low impact.

### ***On the ground***

The presidential decree also obliged *ejidos* to participate in the division of labour; they could not withdraw from it. The only condition under which they could legally use timber themselves was if the factory did not need it. In such a case, farmers had the theoretical opportunity to use timber. However, forestry engineers interviewed confirmed that this situation never occurred. On the ground, the decree and the emphasis on scientific forestry methods held by engineers, to which they had little access, limited their role to logging trees marked by the forestry engineers and technicians, and to reforest. Chambille (1983, pp 83-84, my translation) describes the unequal relationships and statuses between engineers, *Forestal* workers and *ejidatarios* in a similar *Forestal* system:

There is a striking difference between the work conditions of the workers of the *Forestal* and the *ejido* members who work under the contractors. The relations between the *Forestal* workers and the management of the *Forestal* are regulated by the annual contract whereas *ejido* members are recruited on an ad hoc basis and have no rights for healthcare. (...) *Ejido* members have lower salaries, more precarious labor conditions. The labor conditions of the *ejido* members are bad. In the mountain, they sleep on the ground under a plastic tarp (*vela*). By contrast, workers of the *Forestal*, when they go to the mountain, are housed in little wooden houses (with their whole families if they desire) with water, a cafeteria, a small store and even two movie screenings a week.

In summary, the labour context clearly divided decision from implementation which was also reflected in the daily conditions of work and material comfort on the ground. Decision-making was the realm of the forestry engineers in the *Forestal*, while *ejidos* were in charge of the implementation on the ground.

#### 4.3.4.3. Economic dimensions

The 1947 presidential decree also largely determined the economic dimension of the process. The new regime did not dispossess forested areas from the *ejidos*. However, establishing a regime of forced collaboration, it considerably restricted the *ejidos*' access to the economic benefits of their management. The regime used several mechanisms to devalue the benefits *ejidos* could obtain from the forests. First, the 1947 decree established an official monopoly which formally obliged *ejidos* to sell timber exclusively to the company according to economic terms defined by the Secretary of Agriculture<sup>19</sup>. Farmers could have gained more had they sold timber to the markets of the Metropolitan area. Second, in this scheme, prices paid by the company to the *ejidos* were established by the Secretary of Agriculture in function of the industrial needs of the company. The San Rafael Company paid for timber as cellulose timber (*celulosico*), a low quality/low price timber, regardless of its actual quality. Third, with timber contract prices set by the Secretary of Agriculture, even though bargaining between the company representatives and the *ejidos* was officially extremely limited, various informants mentioned cases of collusion between the company and the *ejidos* in order to lower the prices paid to the farmers (Barreto-Flores, 1998, pp.34-39). These practices reduced the income *ejidatarios* could obtain from the forests. Box 4.1 presents excerpts from interviews that bring up examples of such collusion in the management regime.

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<sup>19</sup> A forestry engineer from the Forestal describes the exceptions to the Monopsony (211299-151).

‘(After the decree), they could not trade timber unless the company would deliver a permit or an authorization in which the company would say that it was not interested in a given quantity cubic meters of timber. This authorization would state that it liberated let’s say 500, 50 or 100 meters for domestic uses and for the needs of the persons or for any reason. To do so, the company needed to write to the Ministry of Agriculture to say that they did not want these products. This never happened. The only thing they used was fire wood for domestic use.’

#### **Box 4.1: Cases of collusion between the ejido's leaders and the San Rafael Company**

Three testimonies:

An official of the Forestry Dept. of the Secretary for the Protection of forests:

....History is being written year after year and there are some vices that come back after many many years. Among these vices I could pinpoint some forms of.... I wouldn't like to use the word corruption, of collusion between those responsible for forest management and ejido leaders. Then often the company, as far as I know used to buy the ejido leaders, (telling them), I will do this and that and they gave something, a bribe to the ejido leaders (030100, Official).

Barreto Flores (1998), a writer of the history of farmers struggles mentions that a historical leader of the Union of Forest Ejidos was accused of bad management practices, corruption and collusion with the factory in 1986. Although an audit was conducted in the Union de Ejidos by the Secretary of Agriculture and showed that 9 million pesos were missing, he was not sued in court (Barreto Flores, 1998: pp.34-39).

An ejidatario (201299):

Look, what is happening now (in 1999: present poor management practices) comes from far away. The San Rafael use to bribe all leaders. We were left without anything.

Fourth, the decree also obliged the farmers, as holders of the forests, to pay for the forestry services provided by the *Forestal*, which were valued 4 times more and construction works realized by the Roads Department 3 times more than stompage and labour provided by the farmers; these sums were discounted from the amounts received by farmers (Hinojosa Ortiz, 1958, p.99; *Forestal*, 1976, 1987). In concrete terms, from 100 pesos of cellulose timber paid for by the company, farmers received 10 to 12 for stompage (*derecho de monte*) as compared to 30 for the *Direccion de Caminos* (Road Department), and 40 for the *Forestal* for services (Barreto Flores, 1998; Chambille, 1983). Last but not least, regulations made access to stompage – the main forest-related income for farmers – difficult, as it was not paid directly to them but deposited into a bank account for the “Improvement of Rural Life Trust” (*Fideicomiso para el mejoramiento de la vida rural*). Even though the original purpose of this fund was to provide funding for local social development, they had only limited access as bureaucratic procedures tended to discourage them from using these funds. Alvarez Icasa

et al. (1993) described the situation in a comparable *ejido* in the early 1990s as “well funded bank accounts and poor farmers”.

In summary, the legal, technical, and economic regulations restricted the ejidos to a position of compliance in the management regime. The decree made any forest uses unrelated to the factory’s needs illegal. From a technical standpoint, it valued scientific forestry techniques and gave the *Forestal* engineers decision-making roles and confined farmers to implementation roles; it prioritized the factory’s economic interests over those of the farmers; last, it deprived them from economic incentives for maintaining the forests and gradually reduced the proportion of their forest-related incomes. Table 4.3 summarizes the mechanisms, short-term and long-term effects of scientific forest management.

**Table 4.3: Mechanisms, short-term and long-term effects of scientific forest management (1947-1991)**

| <b>Dimensions</b>     | <b>Practices</b>  | <b>Short term outcomes</b>  | <b>Long term effects</b>  |
|-----------------------|---|---|---|
| Legal status          | Restricting legal to only the needs of the factory.       | Made illegal traditional uses of forest and small scale forest extraction (ant-logging).            | Mistrust vis-à-vis legal context.   |
| Legal monopsony       | Restricting sales to the factory only.                    |   | Absence of economic incentives for timber.  |
| Forestry techniques   | Supplying the San Rafael factory in timber for cellulose. | Neglected other, i.e, non-timber, possibilities of resource use.<br>Neglected other uses of timber. | Absence of creative perception of opportunities for forest development                                      |
| Scientific management | Establishing forestry engineers as central                | Discredited farmers, traditional knowledge of the forest.   | “Knowledgelessness”: traditional knowledge is too discredited and access to expert knowledge is impossible. |
| Economic              | Setting favourable terms for factory.                     | Led to farmers’ lack of interest in the forest as a livelihood.                                     | A paranoid organization.  |
| Collusion practices   | Bribing leaders   | Fueled internal feuds and conflicts among farmers.  | A paranoid organization.  |

#### 4.3.4.4. Partial implementation and limited resistance

All together forestry reports and engineers confirmed that the strict conditions of the decree made the steady supply of the factory possible although they were never fully implemented on the ground. The management regime fulfilled its objective and supplied the San Rafael Company with timber; it supplied more than four million cubic meters of timber in the 1947-1991 period (Forestal, 1987). However, it was generally of low intensity for technical and institutional/social reasons. On the technical side, the Ministry of Agriculture regulated the use of low impact forestry techniques that limited yields despite the call for more intensive extraction frequently made by engineers<sup>20</sup>. On the institutional/social side, two factors limited the implementation. First, the frequently unclear property delimitation led to conflict situations and prevented the factory from signing official supply agreements with the ejidos<sup>21</sup> – and thus limited timber production. About half of the area conceded to the factory was not ‘cultivated’ on a regular basis. Second, farmers also resisted the system passively and after 1974 on a more active front. For instance, the report of the *Forestal* in 1976 mentioned (Forestal, 1976, p.55) that only 51 out of the 78 parcels officially allocated in the management plan were actually cultivated “because of illegal situations or conflicts between the ejidos and the *Forestal*” (1976, p.55). The report further mentions that in other areas, farmers logged illegally for their personal benefits. A forestry engineer (1981-1991) (Dec. 20, 1999) confirmed:

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<sup>20</sup> The 1976 forestry report mentions the need for intensification (Forestal, 1976, p.46):

‘It is becoming tiring to mention that in Germany, in the South Eastern part of the USA, and in the Scandinavian countries yield per hectares are much higher than the yields of our forests. This situation that surprises us, becomes even an object of concern considering that the ecological conditions of our country are by far more favourable than the forests of these countries. The reason for this, that before was hard to find out seems now easy to understand: everything is caused by the way we are managing our forests. While extensive cultivation techniques have generalized in Mexico, these countries promote intensive cultivation techniques, based on the implementation of forestry techniques more in agreement with the potential of the forests in using fertilizers, obtaining more species more resistant and with fast growth and finally with technical fundamentals that are the results of research.’

<sup>21</sup> For instance, the 1976 Forestal (p.55) report mentions some Anomalies of the 1953-1962 management plan: (1) confusion in the areas under jurisdiction of the San Rafael and the National Parks, as well as between some parcels to be included or excluded in the management plan; (2) around 49% of the forested area, mainly in the State of Puebla had been left out of the management plan due to a mistaken interpretation of the Presidential decree that established the Forestal.

It was never totally implemented. We could not. In a region where about 30% of the population was on the verge of poverty, we could not implement it fully. We knew that there was illegal logging, but we included it in our calculations for future logging.

Farmers' resistance for most of the first three decades (1947-1976) was passive and scattered. Active resistance finally started in 1974, 27 years after the decree, with overall limited gains. In 1974, Silverio Salazar, an ejido leader, established the UEFEZ (Union of Forest Ejidos Emiliano Zapata), with most of the ejidos of the whole area covered by the San Rafael concession which started negotiating one-on-one with the San Rafael factory in 1976. However, in 1986, the UEFEZ was in internal turmoil against Salazar, as he was accused of collusion with the factory. A group of dissident ejidos accused him of (1) receiving bribes from the factory in exchange for lower prices in the contracts, and (2) of not presenting clear union accounts. These suspicions were confirmed by an accounting audit conducted by the Secretary of Agriculture and provided evidence that 9 million pesos were missing. Despite this, Salazar was never sued in court (Barreto Flores, 1998 pp.34-39).

This dissident group constituted of a smaller union led by the then president of the *Ejido de Tlalmanalco* finally obtained a 22% increase in the price of timber in 1988, which still represented only about 50% of the equivalent market prices in the region—the restriction of selling all timber, regardless of its quality, as cellulose quality, lowered its price (Barreto Flores, 1998, p.41). Finally in the spring of 1991, the Union obtained the retraction of the 1947 decree; ejidos finally had the right to sell timber to the market.

#### **4.3.5. Lines of inclusion and exclusion, co-existing under scientific management: one regime, three stories**

This period of “rest” for the forest was also a period of reflection for stakeholders in the regime. The time had come for locals previously involved in forest management to make sense of their experience under the now defunct regime. How did actors make sense of their personal experience and of the role of other stakeholders in the previous management regime? How did they make sense of the biophysical situation of the forest in 1991-1995 after more than four decades of scientific forest management?

***One regime, three thought worlds***

The different groups of actors—namely forestry engineers and farmers— who interacted during the 44 years of the regime made sense of their experience in different ways. Although they had long been co-existing in the management regime, their thought worlds remained distinct. Table 4.4 summarizes these differences.

**Table 4.4: Whose history? Making sense of scientific management and its side effects**

|   | Forestal/forestry engineers   | Ejido leaders  | Ejidatarios   |
|---|---|--|---|
| Biophysical situation in 1991.                      |   |  |   |
| How did they experience their organization?         | <p>“I remember it all these years at the Forestal as something transcendental (...) as something beautiful, the good times of the forestry services. Yes, I remember it all like something rewarding that one lived.”<br/>Forestry engineer (1981-1991).</p>  | <p>Many people question the fact that nothing more than two hundred, two hundred people are ejidatarios while the municipality is so large.</p> <p>It is that, when the land allocation occurred in 1934, we had to have a struggle. Those interested were those who struggled. If other people were not interested, well nothing, too bad.</p> <p>Today, the descendants of those who struggled have the fields. (Ejido leader, 140799)</p> | <p>Well, my experience as an ejidatario means being very poor.</p>  |
| The role of the organization in the domain          | <p>Technical dimension:<br/>“Basically, the only thing they learned to manage was extracting (trees). We were marking trees. They cut and transported them. Well, the technician responsible is the one who decides what has to be done in the forest. The ejidatarios, land owners, don’t put their hands in technical matters. Not at all. (Forestry engineer, Forestal, 1981-1991)</p> <p>Cultural dimension:<br/>“They are still hoping that Santa Claus will come and solve it all... Yes, there are still such mentalities that count on the government to solve all their problems”.<br/>(Forestry engineer, P201299-90)</p> | <p>The factory always exploited us. They stole from us and destroyed out forests. (Ejido leader, 140799).</p> <p>Everything was against us. The decree (1947). The factory. We struggled again and again. Some of the leaders (of the farmers movement) were bought by the factory. And when we got the decree down, the ban. But we made it. (B, Ejido leader, 140799)</p>  | <p>The San Rafael company used to bribe them all the time. Not only to ejidatarios but also to the municipal authorities because it corresponded to its interests, The company was very powerful in the economy. (Ejidatario, 1199, 21)</p> |
| Internal  | <p>There was a good work ambiance. The Forestal of the San Rafael was prestigious and we got all along very well. (Forestry engineer, 1978-1991)</p>  |  | <p>Yes, all the presidents had their problems of poor management to various degrees. Where there is money, there are problems, and if the more money, the more problems. (Ejidatario, 1099-123)</p>   |
| Assessing the biophysical situation of the forests. | <p>Forests were well-managed. The proof: forests are still around. (AC, forestry engineer, 0999)</p>  | <p>They did not manage the forests at all. They just exploited them without counting. The factory just saw its interests (B, leader ejido, 140799)</p>   |   |

#### 4.3.5.1. Forestry engineers: a stable world of rationality, order and harmony

By the end of the management regime, forestry engineers emphasized the stability, conviviality and overall harmony they experienced within the *Forestal*. They focused on the relatively harmonious collaboration between engineers and technicians that prevailed in the prestigious organization, that conducted its ecological and economic mission well in the management regime. The decree set up rules and roles in resource management, implementing rational management that contributed to supplying a dominant industrial player and gave purpose to their work. A forestry engineer recalls his experience (101099-7):

‘We felt that the Forestal of San Rafael was among the most prestigious Forestales in the country. It had been one of the first ones established on a specific area and it had already applied the plan of management for already more than 30 years (when I joined it). I remember all these years at the Forestal as something transcendental (...) as something beautiful, the good times of the forestry services. Yes, I remember it all like something rewarding that one lived. This was a very peaceful (pacific) work environment. Since we all knew one another, we were companions in everything. We used to live in harmony. There were never serious problems, such as laboral - (labour relations) ones, or other problems among companions.’ Forestry engineer (1981-1991).

*Viewing the other* - Forestry engineers emphasize the cultural traits of farmers to explain their limited learning over the four decades. An engineer acknowledges that the farmers learnt some ‘technical’ dimensions – however, only those related to the implementation of the management plan – over the years while setting the division between formulation and implementation in a very unquestionable and unambiguous way:

“Basically, they learnt to manage their forests – only on what is related to extracting (trees). We were marking trees. They cut and transported them. Well, the technician responsible is the one who decides what has to be done in the forest. The ejidatarios, the land owner, doesn’t put his hand in technical matters. Not at all. (Forestry engineer, Forestal, 1981-1991)

Forestry engineers explain this absence of learning over the years by the cultural traits of the farmers and their dependent relations with the state authorities. This culture also justifies the domination of the farmers by the forestry engineers in the management regime:

‘They are still hoping that Santa Claus will come and solve it all... Yes, there are still such mentalities that count on the government to solve all their problems. Now, when there is a

productive project in an ejido, there is always someone who will say: 'What will happen with this person who leads the project? Is he going to steal and take away?'. Unfortunately, it is very hard for ejidatarios to agree to produce together. In the ejidos, this doesn't work. In general, the winner of the game is the one who opens most his mouth, or with more vision. Unfortunately, this is something one can often see, this one will also build something but not share with the others. This is all cultural.' (Forestry engineer, 201299-90)

#### **4.3.5.2. Farmers' discordant voices**

On the other hand, farmers are divided on their experience with the Forestal years in function of the position they held. While leaders emphasize struggles to end up with the regime, other farmers describe their powerlessness vis-à-vis the domination of their leaders and of the factory. In a nutshell, a leader, when asked to recall his experience, mentioned the series of collective struggles the ejido went through all along its history: struggle to get land allocation in the 1920s, to end the concession to the factory in the 1980s, to end the ban in 1991-1995, struggle to develop the economic potential of the ejido since October 1997, struggle against the illegal loggers now, and against other ejidos with whom they have delimitation conflicts. A leader (140799-87):

The factory always exploited us. They stole from us and destroyed our forests. Everything was against us. The decree (1947). The factory. We struggled again and again. Some of the leaders of the farmers movement were bought by the factory. And when we got the decree down, the ban. But we made it.

In the eyes of the ejido leaders, these past struggles legitimize their presence as central stakeholders in the domain of forest management. This central position is a reward for those long and costly past struggles:

Many people question the fact that no more than two hundred, two hundred people are ejidatarios while the municipality is so large. It is that, when the land allocation occurred in 1934, we had to have a struggle. Those interested were those who struggled. If other people were not interested, well nothing, too bad. Today, the descendants of those who struggled have the fields. (140799)

#### ***Farmers***

The version of the ejido farmers who have not achieved leading positions is rather different from this official version based on litanies of struggles. A farmer in his 70s, after 50 years of participation in the ejido, expresses his powerlessness and poverty, both vis-à-vis the factory and the leaders of the ejido:

Q: What is your experience of being an ejidatario?

Well, the experience of being an ejidatario in all these years is the experience of being very poor. The San Rafael company used to bribe them all the time. Not only ejidos authorities but also the municipal authorities because it corresponded to its interests, The company was a very powerful economic actor. (DG, Ejidatario, 1199, 21)

He also views wealth and wealth creation as major causes of corruption and disruption for ejidos:

Yes, all the presidents had their problems of poor management to various degrees. Where there is money, there are problems, and the more money, the more problems. (Ejidatario, Gabino, 1099-123)

All together, these 4 decades of centralized, scientific management have led to a feeling of powerlessness among farmers. If both farmers and leaders mention the role of the factory as a source of exploitation – for leaders – and collusion with leaders for non-leading farmers, none question the role of the forestry engineers in implementing the management regime. Forestry engineers are viewed as neutral servants of scientific forest management.

### ***Geographic proximity, remote thought worlds***

All together, despite their geographic proximity and their 40 decades of ‘common life’ in the management regime, farmers, leaders and engineers are in remote thought worlds. The thought world of forestry engineers is composed of unquestionable technical rationality and legal status, which guarantee them a central position in the domain of forest management. Forestry engineers justify the unfavourable terms of exchange imposed on farmers by the farmers’ low level of technical competence in scientific forestry as well as in the need to prioritize the interests of the factory over those of the farmers’, in the name of national industrialization strategy.

The thought world of the leaders is composed of a long litany of struggles and violence. These struggles were the only strategy for overcoming unfavourable terms of exchange caused by an unfavourable external legal environment. These struggles legitimize their central position in the domain of forest management. They present themselves as heroes of the past struggles and thus not accountable to current management practices.

Finally, the thought world of non-leading farmers is rife with powerlessness and discouragement. Powerlessness, since the external struggles have not led to a betterment of their situation, as leaders have most often stole the economic benefits of the struggles. They also perceive the remoteness of the leaders – as non-accountable and focused on the struggles— and the remoteness of the engineers as holders of a legal representation and as holders of unreachable technical knowledge in forestry<sup>22</sup>. This sense of powerlessness has gradually led to discouragement for ejido matters.

#### **4.3.6. Factory's decline: the end of a model**

In the 1980s, the San Rafael Company exhibited Janus faces □ the apparent strengths of an everlasting industrial powerhouse and increasing internal and external vulnerabilities. The company continued to employ around 2,000 workers; it was the principal benefactor of the village and an unchallenged regional employer. It produced around 10% of the paper consumed in Mexico and offered a wide array of quality paper distributed by retailers. In 1973, President Echeverria had visited San Rafael and praised the company as the “model and the mother of all Mexican pulp and paper companies” and even considered nationalizing it (Arango Miranda, 1997).

However, its eroding market position and bleak financial situation seriously threatened its future. The San Rafael Company's production had not grown at the same pace as the Mexican market<sup>23</sup>. Also, in the 1940-1970 period, 35 new companies entered the Mexican pulp-and-paper market (Celorio, 1998). Equipped with old machinery, hampered by an old and expensive labour contract<sup>24</sup>, the company had limited ability to react to these

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<sup>22</sup> These differences in terms of the content of “what is made sense of” are also reflected in the quality of the text of the interviews of the different groups. There is a striking difference between the precise, scientific discourse on the past by the forestry engineers with the blurry story *ejidatarios* make of their experience. Forestry engineers remember with a high degree of detail and exactitude dates, names, events, places, whereas farmers most often mention only eras, and tend to confuse years, events and people.

<sup>23</sup> For instance, Atenquique, one of its competitors, increased its production from 30,000 tons a year to 120,000 by the end of the 1970s. This represented the average growth of the paper sector. San Rafael, on the other hand, only increased its production twofold (Arango Miranda, 1997)

<sup>24</sup> Providing workers with above average salaries and housing, sponsoring sports, cultural activities, patriotic and religious celebrations, the factory sustained a “privileged enclave”, a “model village” (Espejel,

changes. The gradual deterioration of its finances exacerbated this inertia. It had become a Mexican-owned company. However, it turned out to be a poor investment for its investors, with lower than industry average returns (Paper-industry historian, personal communication, 050100). The company's debt had also increased during this high-growth period. In 1970, the *Nacional Financiera*, its main creditor and a State financial institution, finally took over the financially bankrupt company. Eleven years later, in 1981, San Rafael Company was purchased by *Crisoba*, one of its main competitors. Investments in the ailing San Rafael Company were scarce and in June 1991, management announced the closing of the factory. The official reasons included:

lack of investments, extreme obsolescence of the machinery and the equipment, the disposal of polluting emissions into rivers and the atmosphere, (...) and innumerable problems of various natures...All these problems have become so persistent that our company is in a poor competitive situation... For these reasons, the board of directors has decided to close the plant on June 9, 1991. All collective labour relations are terminated on this date. (Cited in Barreto Flores, 1998, p.52, my translation)

In September 1991, the plant opened again with about one fourth of the personnel and a new social contract based on federal labour laws. The factory withdrew from its central role in local life (Mirango, 1997). The technologically outdated and highly polluting cellulose plant was closed, and the *San Rafael-Crisoba* plant stopped using local lumber and imported it from other parts of Mexico, and from Canada and the United States since then. Finally, the *Forestal* closed in October 1991.

#### **4.4. Moving beyond scientific forest management: a time to reflect (1991-1995)**

##### **4.4.1. Freezing the forests? The ban**

The end of the 1947 decree and of the factory in the Spring of 1991 offered promising opportunities to the ejidos. Finally they hoped to be able to sell timber to the market. However, their victory was short lived, since the end of the management regime centred

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1994). Benefits for workers and their families included housing and between 1936 and 1970, around 860 houses were built (Arango Miranda, 1997) and a department of the factory took care of their maintenance. Indicators confirmed the positive effects of the factory in the development of San Rafael, compared to the rest of the region. In 1950, the illiteracy rate in San Rafael was 36% compared to 50% in the State of Mexico. Also, the common diet in a San Rafael family offered more variety than the average diet in the rest of the state (Arango Miranda, 1997). The factory provided lifetime, secure employment based on the labour contract negotiated in 1936 and improved each year during labour- management negotiations.

on supplying the San Rafael was simultaneous with a major change in State-level forest management policy.

On September 9, a decree announced a ban on the forests of the State of Mexico. Official reasons for the ban were to allow the forests to recuperate (Barreto Flores, 1998, p.55). The short-term and social effects of the ban on forest use were to demobilize farmers' movements. A leader recalls (140799-122):

We had been fighting the factory and struggling to get rid of the 1947 decree for decades and finally we could see the light. Finally the forests would finally be ours (...). Now, this decree (ban) had been decided by the State of Mexico and it just demobilized us all. Again, we had lost and could not do anything about it. It fell on us by surprise.

Locals, forestry engineers and ecologists agree that the long-term biophysical effects of the ban were detrimental to the forests. The end of the Forestal also meant the end of the works conducted to maintain and protect the forest, including reforestation campaigns and warden and fire brigades; forests remained unprotected during the years of the ban. Also, farmers excluded from the opportunity to use the forest had a limited motivation to protect it. As a result of this vacuum, large, often armed timber smuggling mafias spread through the forests and had devastating effects in these 5 years (1991-1996), and studies conducted in 1996 based on satellite imaging evidenced a loss of 30% of the vegetal mass in Tlalmanalco's forested area (Chavez & Boix, 1996).

#### **4.4.2. 1996: A bag of gold and internal obstacles**

##### **4.4.2.1. A new institutional context: the bag of gold**

The 1996 federal forestry law replaced the ban and allowed ejidos to log the forests under technical monitoring of accredited forestry engineers. The paradox of the post-1996 situation is that the ejido now has room for development that previous management regimes had prevented. An ecologist captures the situation of the *Ejido de Tlalmanalco* created by this new institutional framework with the image of a bag of gold:

'It is as if a bag of gold had fallen on the *ejidatarios* (with the 1996 forestry law) and then the bag of gold squashes them and they don't know how to get out from under it and how to start managing the money. We have very good (forest) resources here. Their poor management reflects a problem of human management more than a problem of resources. For sure, if resources were

well managed, they could become a machine for producing timber with a high yield with a captive market of the metropolitan area (of Mexico City).’ JMC 1998.

However, the major obstacle for development in this generally favourable context is the ejido’s internal dynamics. In the following section, I explore this “problem of human organization” mentioned.

#### **4.4.2.2. Micro-level obstacles: sustaining a dysfunctional organization**

In 1996, the ejido is stuck in a situation of low organizational performance. Its highly volatile organizational processes often lead to sub-optimal decisions; it has developed a fight/flight organizational culture; all together, its design parameters and land tenure structures designed at the times of land reform have been ineffective in halting this low organizational performance. Table 4.5 summarizes the organizational process, culture and design parameters.

**Table 4.5: Organizational process, culture and design parameters**

| Organizational Dimensions                   | Dimensions  | Effects   | Symptoms  |
|---|---|---|---|
| Organizational process                      | Volatile assemblies<br>Individual self interest<br>Short term decision horizon  | Unpredictability: volatile assemblies, sub-optimal decision-making loops of failures.<br>Unstable coalition-making. | Allocating the quarry to an external contractor.<br>Electing and re-electing leaders with records of poor management practices.<br>Allocating timber to external contractors. |
| Organizational structure: design parameters | Conditional land rights.<br>Democratic and collective decision-making: majority rule; assembly vote; 3-year term.<br>Inalienable membership.<br>Institutional accountability to Secretary of Agriculture. | Low accountability vis-à-vis municipal government and local organizations.  |   |
| Organizational culture                      | Strong polarization and dramatization: heroes and victims; successes and failures;<br>Indifference and disconnect with the rest of the community.   | Poor self representation and identity.<br>Closed doors policy vis-à-vis non ejidatarios/external stakeholders.      | Low level of trust inside. Struggles are internal and vis-à-vis rest of the world.<br>Reluctance to transmit titles to children; cohesive demographics: old ejidatarios.      |

#### 4.4.2.2.1. Organizational process and poor decision-making

In the short term, the main decision body for collective decisions of the ejido is the assembly and decisions are made according to the majority. This design parameter is intended to enhance participation and formal democracy. However, it has often resulted in sub-optimal decision-making in single decision instances that have repeatedly crystallized into a low performance organizational process.

The contracting/allocation of a quarry owned by the ejido at the end of 1999 exemplifies this low-quality decision-making in a single instance. The *ejido* owns a stone quarry that

they have contracted out to supply the strong demand in the construction market of the metropolitan area of Mexico. As of the end of 1999, market prices per cubic meter are about 8 pesos.

The contract with the former contractor expiring at the end of year, the assembly met in November to decide the conditions of the next extracting contract. The leader of the ejido introduced a contractor to the assembly, whose first action was to promise a banquet to celebrate the contract without mentioning the specific conditions of the contract, such as price paid, duration of the contract, rate of extraction, and monitoring mechanisms. An ejidatario (211299):

This was Mr. X. And we asked them, “well, why is there only one contractor in competition, we want to see other ones.” But the leader had already agreed that Mr. X. would be the new contractor for the quarry. Then, it ended up that Mr. X. is the new contractor. He promised a 20% increase, which is very little and a banquet. People were very happy with the banquet and the majority voted to give him all the latitude for the quarry. (Ejidatario, 201299)

During the assembly, the majority agreed to the deal without questioning the price and specific conditions of the contract until an ejidatario asked how much per cubic meter they would obtain for the contract. The contractor responded: 7 pesos per cubic meter. The ejidatario argued that this was obviously under current market prices. The contractor responded that he would give the ejidatarios a good banquet to celebrate the new contract, which gained the assembly’s approval and vote. In the end, the ejido signed a contract with the contractor without considering meeting with competitors and despite the obviously lower price offered by the contractor supported by the *ejido*’s leader. The protesting ejidatario, embittered by his experience, recalls (211299):

‘During the assembly, their minds become fuzzy. They become happy when they receive a centavo. Some of them know their rights, but for many they are something very vague. People are very conventional. When I have a doubt, I ask and check, I want them to give us clear information. They just keep quiet and say that they don’t want problems. It is hard because we are so retarded. Every time I ask something, they check me. Every time somebody tries to make it, they just do everything to drown him; they just want him to stay at the bottom.’

Over the long term, repeated situations of poor decision-making have led to the construction of self-perpetuating failure loops that have reinforced the effects of the

factory-dominated disabling legal context, as summarized in Table 4.6. Until 1996, the external context excluded farmers from economic incentives and management decisions regarding forests. These low stakes led to a lack of interest in forest management, which in turn created the conditions for low accountability of leaders. This low level of accountability opened the door for repeated poor management practices – including corruption, personal enrichment and collusion with externals. These poor management practices further decreased returns given to ejidatarios. In this process, low accountability of the leaders and low interest of the members in ejido affairs are mutually reinforcing. Low accountability leads to lower returns for members, which lessens members' interest in forest management. On the other hand, a low degree of interest by members opens the door to a situation where there is low accountability from the leaders.

The effects of this poor decision-making are also measurable in terms of the election and the performance of the previous 9 presidents, which exemplify this long dysfunctional process. Only one of the 9 presidents finished his 3-year term and is remembered as honest. Among these presidents, 2 were re-elected despite a record of poor management practices in their first unfinished term; and despite promises of good behaviour made before the election a couple of year after, the two presidents continued poor management practices during their second terms<sup>25</sup>.

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<sup>25</sup> Documenting these past 'poor management practices' with precision was no easy task, for various reasons. First, ejido archives were not available, as past presidents have tended to destroy or take away the archives that could be held against them. Second, the low level of understanding of the rules displayed by the ejidatarios often resulted in extremely diverse interpretations of what had happened. Third, I also noticed a tendency to polarize accounts of past leaders. For instance, an ejidatario A would emphasize only the 'poor management practices' of a former leader B and omit his positive actions, while B would omit what C had done well and darken A's actions. I often had the impression that they were all lying. I interpreted these often conflicting and unclear accounts of the recent past history as a reflection of the low level of agreement/highly volatile organizational situation.

**Table 4.6: the performance of the 9 past presidents**

|                    |                      |   |
|--------------------|----------------------|---|
| 1985-1987?         | Victorio Flores      | “Some obscure unproven things occurred. He sold a field in San Rafael, Iztapaluca in non-transparent conditions. They are still in litigation” (J.C.) |
| 1987-1988?         | Pedro Reyes          | No information available  |
| 1988-1991?         | Bonifacio Lozada     | President of Union de Ejidos Ramon Beteta (Eastern part of State of Mexico).<br>He stole important funds from the whole union of ejidos (JC).         |
| 1985-1991?         | Cesar Garcia (5 yrs) | He asked the assembly to prorogate his term. He presented clear accounts (JC).  |
| 1991-1993          | Sabino Reyes         | JC: had bad management practices (malos manejos) re: the forests.   |
| 1993-1995          | Gabriel Mendoza      | When he left, everybody suspected him of poor management practices (JC).  |
| 1995 - 1996        | Silviano Rios        | He had to resign after less than a year.  |
| 1996 - 1997        | Angelina Corano      | She was interim only once Silviano resigned.  |
| 12-1997 to 09-1999 | Bonifacio Lozada     | Charged with fraud of 4 to 6 million pesos.<br>Sued in court. In jail, as of April 2001.  |

Sources: Ejidatarios and external informants.

This dysfunctional organizational process has led to sub-optimal decisions on the allocation of resources and elections of leaders, which have, over decades, led to the construction of a paranoid organizational culture.

#### **4.4.2.2.2. Sustaining a paranoid organizational culture**

The paranoid organizational culture affects relations inside the ejido. A major trait of the paranoid organizational culture is the high level of mistrust among ejidatarios, which leads to closing the demographic composition of members as well as more generally to eroding family ties in various forms.

This paranoid culture has led to an extremely cohesive demography. Zapata’s grandchildren are over 65, almost all male, have all lived all their lives in Tlalmanalco, and display a low tolerance for diversity or divergence for ‘people from outside’ — even if these individuals are their relatives. This is exemplified by a veterinarian who holds ejidatario rights – his mother and his brother were ejidatarios – and who tried to get involved after retiring in Tlalmanalco. He recalls his experience as a ‘new’ ejidatario (081299):

I am an ejidatario. I had my rights. When my mother died, I started to want to use them. I went to the assembly. I let them talk. They told me, “you don’t live in the village any more and you don’t need this income”. Yes, but I have rights. I wanted to raise their awareness as peasants. I knew of new farming techniques I had seen in other places in Mexico and I wanted to show them that it was possible to get two harvests a year instead of one with hybrid maize, which has a shorter vegetative cycle, or that it was possible to have maize and oats (avena) after, maintaining the productive capacity of the land. I planted these new experiments and in spite of the good results I had the following year, I decided to leave it and let my rights to relatives who are peasants. It was too much fuss and trouble for nothing. They started to envy me.

This organizational culture has also affected intergenerational family ties. Most ejidatarios are reluctant to pass on their rights to their children because they fear that their children would kick them out of their homes once the ejido title is passed on. An ejidatario, among the youngest (211299):

The majority are old. Their habit is to take profit now. And most of them are poor. They don’t want to transmit their titles to their children because they fear that their children would abandon them afterwards. There is no more respect for the elderly. They forget their parents. Yesterday, I spoke with an ejidatario from Atautla. A group of people had told him that an old man was condemned in a room of what had been his house, because his son had gotten married and his wife did not like her father-in-law. Then they had locked him in. The neighbours knew that the old man lived there. They interrogated the son and he told them, “Yes, Dad is in his room”. The room was small; it had no bathroom, nothing. It stank and the nails he used to grasp food were long and dirty.

Rural legend, or fact? In any case, the fear to pass on titles before dying is widespread among ejidatarios. This has led to the fact that most children of the ejidatarios are uninterested in the ejido, and leave the land plot to go to Mexico City in search of better opportunities. A commentator on the farmers’ communities describes the dynamics of high mistrust between ejidatarios as a situation of “social decomposition with perverted relations” (150100, personal communication):

They are very divided on the management of the resources. They steal one from another, even though they were his friends or his children or although they had gone to school together. No escape. One has to live there all one’s life. He stole from me, I stole from him. These are the perverted relations in the lives of the ejidos. For me, this is all social decomposition.

These dynamics have led to the construction of a negative sense of organizational identity centred on powerlessness. An ejidatario (211299):

There is a Mexican saying that says that Mexicans will always prefer a gringo bottle over a Mexican bottle. Every time someone tries to get out, or get their head out of the water, they try to drown him: they want to limit him always. They are conformists. We don’t try to change the situation. Ejidatarios are easily manipulated because they are sentimentalists. It is like on TV: they play sad images and we cry; they play happy images and we laugh. All that could make them lose

their understanding. It is illogical that they vote for somebody that prejudices them but they do it every time.

#### **4.4.2.2.3. Ineffective organizational parameters**

The design parameters and land tenure system inherited from land reform had been decided to protect farmers and enhance community management. However, these parameters have not served the organization well in fulfilling its mission.

##### ***Land tenure system and inalienability and conditionality of land rights***

The first parameter concerned land tenure system. Land had been allocated to the ejido as inalienable and conditional; inalienability was intended to protect farmers from selling off their plots under pressures, while conditionality aimed to protect the interests of the Nation in the land. However, the conditional status of property rights, which has been applied especially in the forested areas for ecological motives in the 1930s, and economic and industrial reasons from 1947 until 1991 have led to a sense of insecurity and lack of interest in the land. An analyst of rural issues comments on the effects of the conditional land system on the ejido (AI, 0100):

There was never a clear delimitation of land....it is as if they rented you a house, and you lived there, but you would never really take care of it because it is not yours. You would never maintain it.

Beyond the conditional status of land tenure, the deficiencies of land delimitation have led to a situation of permanent conflict with other neighboring ejidos and bienes comunales. For instance, the *Ejido de Tlalmanalco* has been in conflict with the neighbouring *Bienes Comunales de Chalma* for around 175 hectares of forests since 1934.

##### ***Collective decision-making vs. accountability***

The second design parameter concerned decision-making. The central role given to the assembly in making decisions aimed to enhance a democratic culture. Yet, it has not led to an adequate governance and prevented repeated and large-scale corruption practices.

For instance an ejido leader repeatedly used various simple tactics for personal enrichment to the detriment of the ejido at large. This could have been prevented had relatively simple accounting procedures been used. An accountant (121299):

‘What happened is that he kept no accounting. This was one of his strategies: not to have any traces and accounting for anything. He did it on purpose so that when the new administration would come they could not check anything. (...) Another tactic he used was to ask saw mills to put the cheques in his own name instead of the ejido’s. He could cash directly the timber sold by the ejido into his bank account. Then, he bought equipment for transforming the timber. He bought old material and charged for the price of new material and cashed in the difference.’

This leader continued these practices of personal enrichment over 18 months, as he bribed the board of surveillance and the ejido board for their silence; through his poor management practices with the collusion of the board of surveillance he pocketed between 3 and 5 million pesos (CAN 600,000 - 800,000) – mainly from timber-related income.

### ***Membership: rights and duties vs. rent***

The third design parameter concerned membership. Ejidatarios were to serve the social and economic development of their community. However, the rights of the ejidatarios have been reduced to a mere rent. An ejidatario (201299):

‘They become happy when they see they will receive a cent. Some of them know their rights, but for many it is something only “lyrical”. They don’t have an idea of what an ejido is. They don’t know they have rights. They ignore the mission of an ejido, that an ejido has to contribute to the welfare of the community. They have rights they use for the individual survival only.’

### ***Institutional affiliation and disconnection from the local community***

The fourth design parameter concerned institutional affiliation with agricultural government agencies. The affiliation with agricultural institutions of the government has created a sense of disconnection between the ejido and the rest of the local community. For instance, locals complain that their concerns are not to be channeled through elected municipal representatives. The elected head of a department in the municipal government mentions the powerlessness she felt when she was questioned by citizens’ groups on forest management in the municipality (120999-34):

‘Then, we really cannot do anything (...). In a meeting of the municipal board (cabildo) we talked about forest management. Really we could not say anything as they (the ejidatarios) said they had authorizations from the federal institutions. These authorizations don’t leave any room for us or

anybody in the municipality to act. No, they don't leave any opportunity for manoeuvring and acting.”

In summary, these ejido's volatile organizational dynamics have led to a dysfunctional process and a paranoid culture which explains the low organizational preparedness in the face of the new challenges related to entrepreneurship and value-creation in forest management.

### **Summary of the chapter**

This chapter has proposed a history of forest management in Tlalmanalco. It has examined the institutional cycles of forest management between 1877 and 1996, and particularly how national policies influenced local forest management in Tlalmanalco in the different management eras.

The first era favored the entrepreneurship of the elite, but the exclusion of the majority of the population led to the revolution of 1910-1920. The second era promoted communitarism, but the priority given to national industrialization policies limited this era. The third era favored industrial users through the implementation of 'scientific' forest management techniques, but the end of the San Rafael Company in 1991 ended this era.

In 1996, forest management in Tlalmanalco was in a crisis. First, the crisis of the Mexican economic miracle based on industries – exemplified by the bankruptcy of the San Rafael company in 1991 – led to the end of the *raison d'être* of the previous management regime centered on industrial needs in timber. The second crisis concerns scientific forest management - that focused on a single objective for a single user – has alienated other users and excluded other uses. The third crisis concerns the situation of the cooperative that is stuck in volatile organizational processes reinforced by a paranoid culture. This crisis of the social world affects the collective capacity to address increasing ecological threats to the region's increasingly strategic natural resources.

The next chapter examines in detail the patterns of organizing and the emergence of new institutions, in the form of interorganizational collaborations in the new context.

## **Chapter 5: Patterns of organizing: collaborations in forest management in Tlalmanalco (1996-1999)**

This chapter presents the interorganizational collaborations in the domain of forest management in Tlalmanalco in the 1996-1999 period. I describe and analyze here the forms of interorganizational collaborations that have emerged and evolved in the domain. The contributions of my work to research on institutional change will be proposed in the next chapter.

This chapter is comprised of six sections. The first section presents the analytical framework used to describe each interorganizational collaboration. Each of the four next sections presents a different interorganizational collaboration that emerged in the domain of forest management in the 1996-1999 period: section 2 presents the logging plan; section 3 the Plan of Municipal Development; section 3 the reforestation campaign; and section 5 the Sierra Nevada Project.

### **5.1. Organizations and collaborations: analytical framework**

What are the new collaborations in forest management? In order to analyze and compare the forms of collaborations that have emerged, I use a simple analytical framework. I define a collaboration as (1) *an exchange* (2) *coordinated* between (3) *two or more organizations* (4) *around common issues or stakes*. These four dimensions of a collaboration compose the analytical framework. First, collaboration involves an *exchange*. The first question aims to clarify what is exchanged: material or perceptual resources? Is the exchange initially limited or is it open-ended? The second dimension is a *coordinating mechanism*: how is the collaboration coordinated? Is there a central organization or a central group making decisions or are common decisions based on consensus? The third dimension is *membership*: what and who determines who participates in the collaboration? Is membership open or closed, initially determined or open to new participants during the process of collaboration? The fourth dimension

concerns *the scope of the issues or stakes*: does the collaboration concern a specific task or open-ended issues? To what extent can the issues be renegotiated as the collaboration evolves?

Organizations active in forest resources in the 1996-1999 period are (1) the *Ejido de Tlalmanalco*<sup>26</sup>, the farmers' cooperative that holds most of the municipal forested areas; (2) the Municipality of Tlalmanalco; (3) the *Casa UAM Comunidad*, a local center for applied and interdisciplinary research on the management of natural resources; (4) the *Consejo Social Iztaccihuatl*, a local civil organization interested in the conservation of the local cultural and natural heritage; (5) *Servicios Forestales*, a provider of technical services in forestry<sup>27</sup>.

The four collaborations are (1) the logging plan (1997-2007), (*Plan de Aprovechamiento Forestal*); (2) the Plan of Municipal Development (*Plan de Desarrollo Municipal*) for the 1997-2000 period; (3) the reforestation campaigns (1997, 1998 and 1999); and (4) the Regional Program for the Management of Natural Resources of the Sierra Nevada (*Programa de Manejo de los Recursos Naturales de la Sierra Nevada*). Table 5.1 summarizes these four collaborations. In the following sections, I describe and analyze the four interorganizational collaborations, according to their institutional context, trajectories, and based on the four dimensions of their scope of exchange, coordinating mechanism, membership, and issues/stakes.

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<sup>26</sup> There are also other ejidos with forested areas in the municipality of Tlalmanalco. However, I do not include them in my analysis (1) for the sake of clarity and (2) because they own areas largely less important than areas owned by the Ejido de Tlalmanalco, which owns 98% of the forests. The Ejido de Tlalmanalco owns 9826 ha, the Ejido de San Antonio, 374 ha, Santo Tomás, 303 ha, San Juan, 33 ha, San Lorenzo, 64 hectares respectively. Source: UAM (2000, p.94).

<sup>27</sup> Other organizations also have mandates related to forest management in Tlalmanalco. For instance, the State-level Secretary for Ecology (Secretaría de Ecología del Estado de México), the Federal Ministry for the Natural Environment and for the Natural Resources (*SEMARNAT: Secretaría del Medio Ambiente y de los Recursos Naturales*), PROBOSQUE, the Federal institution in charge of reforesting, have been involved in forest management issues. However, decentralizations give a predominant role to local organizations.

**Table 5.1: Interorganizational collaborations in forest management in Tlalmanalco (1996-1999)**

| Collaboration  | Impetus                                     | Time                       | Scope of exchange   | Coordinating mechanisms  | Membership   | Common stakes/issues  |
|--|---|----------------------------|---|--|--|---|
| 1. Logging Plan<br>( <i>Plan de aprovechamiento forestal 1997-2007</i> )   | Legal obligation for logging forests.       | 1997 - 2007                | Task- specific; forests of Ejido for 10 years   | technical formulation/ implementation  | <i>Servicios Forestales</i> , (Forestry Engineers firm), <i>Ejido de Tlalmanalco</i> .   | Logging plan and monitoring by Servicios Forestales.  |
| 2. Plan of Municipal Development<br>( <i>Plan de desarrollo municipal 1997-2000</i> )  | Legal requirement                           | January 1997<br>April 1997 | Requirement for funding vs. opportunity of community mobilization<br>Political demands and resource allocation vs. generation of a common vision.                                     | Political bargaining vs. value-based (community and vision building).                    | Municipality of Tlalmanalco, <i>Consejo Social Iztaccihuatl (CSI)</i> , <i>Casa UAM Comunidad</i> , <i>UAM</i><br><br>Political parties vs. open to all population and external experts. | Specific and discrete local problems with targetted resource allocation vs. commitment and ownership of decisions.  |
| 3. Reforestation Campaigns<br>( <i>Campanhas de reforestacion</i> )  | Initiative of the Director of Ecology.      | 1997, 1998, and 1999.      | Task-specific: reforestation on areas located in the municipality.  | Centred on the champion of reforesting.  | Dept. of Ecology, <i>Ejidors</i> from Tlalmanalco, and “captive” population.   | Planting of 1,500, 000 trees over three seasons (municipal estimate).   |
| 4. <i>Sierra Nevada</i> : Regional Plan for the Management of Natural Resources of the Sierra Nevada<br>( <i>Programa de Manejo de los recursos naturales de la Sierra Nevada.</i> ) | Joint Initiative of CSI, Casa UAM Comunidad | Since 1997                 | Regional level: includes 6 municipalities of the Eastern part of the State of Mexico. Participatory assessment the environmental and social situation; Small scale community projects | Vision-led: “building community”.<br><br>Visionary leadership and individual commitment. | <i>UAM</i> , <i>Casa UAM-Comunidad</i> , <i>Consejo Social Iztaccihuatl</i> , local population and experts from various Mexico City based institutions, more than 50 organizations.      | Written documents on: local natural resources: Participatory environmental appraisal, 1998; Atlases of municipal natural resources, 2000. (1997, 1998, 2000)<br>Ongoing projects: Yollotlali, Bosque Escuela. |

## **5.2. Collaboration 1: The Logging Plan (Plan de aprovechamiento forestal) (1997-2007)**

### **5.2.1. New opportunities for ejidatarios and for forestry engineers**

As seen in the historical chapter, the institutional framework that prevailed in most of the twentieth century strictly regulated roles and relations in forest management. In particular, the 1947 presidential decree prioritized the industrial users and scientific forestry-based management for the supply of the pulp and paper company; all together, it restricted the economic incentives, the potential role and the room for learning of the ejidos in the activities of forest management.

By contrast, the 1996 forestry law decentralizes forest management, and creates new opportunities for farmers in timber extraction and processing which open the door for employment generation. After the 1996 law, there are three price levels according to the level of processing, with three levels of employment generation. The first price level is for on-site logging (*madera in pie*), in which the *ejido* sells timber in the forest for about 200 and 550 pesos per cubic meter, the contractor being responsible for its logging and transportation. This significant variation in price depends on the ejido's contacts and the leader's negotiating skill. The second price level of 600 pesos per cubic meter pertains to timber sold logged and available at the access trail (*in brecha*). This simple processing of all the Ejido's timber would create around 15 permanent jobs. Finally, the third price level is 900 pesos per cubic meter for timber in planks and boards (*madera aserrada*) for 890-900 pesos per cubic meter. A more elaborate level of processing such as this would generate 30 jobs – including 15 loggers, 10 workers and 5 administrative and commercial positions in a saw mill (UAM, 2000, p.95).

The 1996 forestry law also enables the sustainable development of natural resources of the area held by the Ejido beyond timber related forest activities. Table 5.2 summarizes some of the opportunities for the sustainable use of natural resources available in the area held by the Ejido. These activities include the use of water for agricultural activities, including fish farms and irrigation; the development of high value agricultural projects

using the soil of the area, such as organic agriculture and micro agro-industry; and, last but not least, eco-tourism, which has a particularly strong potential given that Tlalmanalco is located 40 km away from the Metropolitan area largely deprived of large green areas. In summary, opportunities for income and employment generation are present.

**Table 5.2: Opportunities in the sustainable management of natural resources**

- Water: Projects that include water treatment and recycling with fish farms and agriculture irrigation; Promotion of ecological bathrooms and SUTRANE systems; areas of oxidation; ecotourism projects such as fishing and traditional spas.
- Soils: Recycling plastic, glass, organic waste, and other materials; organic agriculture; horticulture; mushrooms; fruit gardens; organic agro-industry (marmalades, honey-based products, *amaranto*-based products).
- Forests: Association for ecotourism services including houses with accommodation, restaurants, cabins, camping, guides for various tours to the Iztaccihuatl (with or without vehicle), bilingual guides, guides for bike tours, mountain bike and horse rentals; guides for cultural tours; bird-watching; timber planting in deforested areas, raising areas for forest fauna.

Source: UAM 1998, p.6 (our translation).

The new law also has the potential to reformulate the roles of forestry engineers and farmers in forest management from the monitoring of timber extraction to the more comprehensive role of consultant to forest-related activities. A study of the Mexican forestry sector identifies three levels of relationship between the forestry engineering firms (*Servicios Tecnicos Forestales*) and the land holders (Escalante y Aroche; 2000, pp.120-121). The first level is technical. As required by the law, it concerns a technical focus in which engineers (1) recommend criteria regarding selection of the logs according to the density of timber in the area; (2) advise land holders on how to conduct the “biophysical intervention” – or advise them on extraction activities such as logging techniques, and extraction of logs from the forests. The second level of engineer involvement concerns forest design; it includes the design of paths into the forest and the management of works to prevent soil erosion; the organization of protection works against fires and pests; reforestation; and the planning for genetic improvement. Finally the

third level has an “integral focus”; it recognizes the importance of the participation of the land holders as a key variable for improving conservation and value-creation. The engineers advise farmers on subjects such as: conducting market research, training, and developing processing and distribution of the forest-products to local markets.

All together, in 1996 opportunities for income and employment generation as well as for a change in the relationship between forestry engineers and farmers have been increased, as the obstacles contained in the previous management regime contained have been withdrawn. As forestry engineers put it, the challenge is to transform ejidatarios ‘from self-consuming producers to forest entrepreneurs’ (Escalante Semerena and Aroche Reyes, 2001, p.167). However, the paradox of the post-1996 situation is that the ejido now has the opportunity for development that previous management regimes had restricted. But what seems to create major obstacles for local development are no longer the macro-institutional factors, but the ejido’s internal dynamics, as examined in the previous chapter. An ejido leader recognizes this potential:

We know we have a lot here. We struggled for it all. There is a big potential here and we want to maintain these forests for our children and grandchildren. We want now to create jobs for our families to live here and remain here in the future (140799).

However, despite the recognition of these opportunities, so far, the main activity and the main collaboration in which the ejido has been engaged (in terms of forest management), is a logging plan (1997-2007) (*plan de aprovechamiento*) with *Servicios Forestales*<sup>28</sup>, a local forestry engineering firm.

## **5.2.2. Analysis of the logging plan**

### **5.2.2.1. Exchange**

Forestry engineers employed by *Servicios Forestales* provide forestry technical services; as required by the new law, they formulate and monitor the management plan for the forests held by the ejido. Engineers provide the technical expertise: they (1) periodically

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<sup>28</sup> The two forestry services companies in Tlalmanalco were established in the beginning of the 1990s by forest engineers formerly employed at the *Unidad Industrial Forestal de San Rafael*.

conduct a detailed inventory of timber resources; (2) determine the logging plan, indicating where, how much and when specific parcels of land will be logged. Forestry engineers are accredited to the state and hold the formal responsibility of monitoring the logging plan<sup>29</sup>; they report annually on its implementation to the state and municipal governments. The ejido periodically pays for technical services in untransformed timber that is processed in the saw mill owned by the forestry engineers.

#### **5.2.2.2. Coordinating mechanism**

The logging plan is characterized by a clear delimitation between formulation and implementation. While forestry engineers design the logging plan based on technical expertise, farmers implement it on the ground under the technical monitoring of the engineers. In all, there is little transmission of technical knowledge from engineers to farmers.

#### **5.2.2.3. Membership**

Membership is restricted to the groups as required by law: accredited forestry engineers and the ejido, the official land holder. Relations are dyadic relations only, since the contract links a single ejido with a forestry firm.

#### **5.2.2.4. Issues/Stakes**

So far, the scope of the collaboration is limited to timber extraction. It concerns an authorized quantity of 7,297 cubic meters of timber a year between 1996 and 2006 (UAM, 2000, p 95). The leader of the ejido asked for a study on ecotourism opportunities by mid 1998 which was delivered at the start of 1999. However, at the end of 1999, due to internal problems, the ejido still had not decided on the issue. Ejido members perceive

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<sup>29</sup> The 10 year plan designed by the accredited service provider requires state approval. Any subsequent modification, such as logging required for pest and disease control must have state approval. In case of non compliance with the legislation, the forestry engineering consulting firm may have its accreditation as service provider to the ejidos withdrawn.

and understand logging plans, but the problematic internal dynamics restrict the possibility for them to engage in more elaborate and more long-term projects, such as ecotourism. A forestry engineer describes his perception of the current situation:

Not much has changed. What we used to do within the Forestal, we just do it now as a private company. But the farmers are the same. Our task is simply to give them advice on how to manage their resources as a business enterprise and to teach them that it is not their interest to destroy the resources but that they should manage them and work the resources in a more integral way. So, it is very hard to change their mentality but they feel committed because the forest gives them returns. They understand that they have to give back to the forests too. We have a lot of projects in fish farming and ecotourism for them, but it is their problem to get organized to advance them. They never agree on anything (12-22, 1999)

#### 5.2.2.5. Conclusion

Table 5.3 summarizes the dimensions of the logging plan.

**Table 5.3: Dimensions of the logging plan**

| <b>Interorganizational Collaboration</b> | <b>Logging plan</b>   |
|--|---|
| Exchange                                 | transaction: technical expertise and monitoring vs. payment in untransformed natural resources. |
| Coordinating mechanism                   | technical formulation/implementation.   |
| Membership                               | determined by legal status  |
| Issues/Stakes                            | Logging trees   |

Altogether, despite the potential for development, this collaboration is a transaction between two organizations in which technical expertise and monitoring activities are exchanged with unprocessed natural resources; coordinated by a clear distinction between an overall technical formulation by the forestry engineers and the implementation by the members and employees of the ejido; its membership is determined by legal status; and its scope limited to timber extraction.

### 5.3. Collaboration 2: The Plan of Municipal Development (*Plan de Desarrollo Municipal*) January-April 1997

#### 5.3.1. The Plan of Municipal Development

##### Winds of change

In November 1996, Ruben Vargas, a local high-ranking member of the PRD (*Partido de la Revolucion Democratica*) was elected mayor. It was the first time since the 1910-1920 revolution that the municipality was not led by a representative of the PRI (*Partido Revolucionario Institucional*). This major political change raised high expectations for a new era in the management of municipal affairs.

In Tlalmanalco, municipal politics had been dominated by the local section of the PRI. Previous municipal governments had a record of low accountability and the last few mayors appointed by the party had records of low popularity – and high volatility. A local (080799):

In 1994, just when the Zapatista outburst exploded in Chiapas, there was an outburst here. Mr. X. was to be the PRI candidate in Tlalmanalco and the people here did not like him as a future mayor designated by the party internally. As a protest, locals closed the road between San Rafael and Tlalmanalco. Three or four patrols were sent by the army to calm the populace. A few days later, the former mayor was replaced by another one. At one point after the elections, the former mayor was afraid to leave the town hall because they cut all the tires of the cars of the municipal team.

Such outbursts suggested that the political process was not functioning well. Locals felt that the municipal government was at best not addressing long term problems, such as the threat of urban sprawl from the Metropolitan area, and the challenges of forest management, or was even contributing to worsen the municipal situation. They perceived that individuals engaged in municipal government were doomed to be caught in dynamics of personal short term enrichment to the detriment of finding a solution to collective problems.

At the national level, a decentralization law enacted in 1983 promoted decentralization and participation at the municipal level (Marssolo, 1994). One of the main tools for the implementation of this culture of municipal popular participation was the Plan of Municipal Development. As a condition for obtaining state and federal funding, the law obliged the municipal government to present the Plan of Municipal Development, as a result of an extended exercise of popular participation, to the state government in the first four months after taking office. However, more than a decade after the enactment of this law, its results on the ground were overall disappointing (Marssolo, 1994). Most municipal governments had cut short the process and contracted out the planning to consulting firms

who usually “fill in the blanks” of pre-formatted grids aligned to Federal and State planning documents (Moctezuma, 2001). This outsourced consulting exercise had replaced the participatory planning exercise required by the decentralisation law.

In the case of Tlalmanalco, a municipality under urbanization pressures, the plan had become an opportunity for corruption related to urban development. A local ecologist (090799):

‘We realized that if the plan of urban development that determines the use of areas was not implemented by a municipal government that has a consensus of the local population, it becomes a simple instrument for them (local government members) to get bribes from developers. Then, it is something that they can use to bargain a good part of the incomes that developers will make.’

The new municipal government promised change. One of the first gestures of the newly appointed head of coordination of planning seemed to confirm that it would deliver it.

### **The legal requirement of the Plan of Municipal Development**

A few days after the beginning of the new mandate, in January 1997, Luis Alonso Aguilar, the newly appointed municipal head of coordination and planning, called Pedro Moctezuma, a professor in Urban Studies at UAM (*Universidad Autonoma Metropolitana*), in Mexico City, to advise the newly elect municipality on the design of the Plan of Municipal Development (*Plan de Desarrollo Municipal*). Elena Burns, Moctezuma’s wife, was in charge of the preparing and revising the plan.

### **Personal and collective trajectories**

Moctezuma and Burns had lived in Tlalmanalco since late 1993. In December 1994, they had organized participatory workshops in the neighbouring municipality of Tepeltlixpa on participatory local ecological assessment, and had convened a regional network of members from 12 municipalities called Tezcaltetepetl (“*A mirror on our city*”) to work on local ecological and cultural issues and to address economic development concerns (Moctezuma, 2001). In Tlalmanalco, they also organized participatory workshops with women on health and education, as well as with the general population on municipal planning techniques and ecology.

During 1995 and 1996, women had been organizing ecological workshops with children, and the Cultural Commission of Tlalmanalco was actively trying to rescue downtown historical sites. In February 1996, members from UAM with different backgrounds started meeting locals on a regular basis in order to address different social and ecological problems. Moctezuma (2001):

“The soul of the initiative resided in popular groups joining forces with students and middle-class professionals to promote collaborative efforts calling for environmental protection and local community development. The core members of the research team encouraged the participants to write about their experiences and planning proposals, involving participatory appraisals of social ecological, cultural aspects of community life. Personal bonds were built between individuals with very diverse backgrounds, ages and positions. For the first time, a common vision was built.”

About 200 people participated in the open assembly on October 26, 1996 in which the community assessment (*Diagnostico Comunitario*), the result of these meetings, was presented. These apolitical workshops occurred simultaneously with the municipal political campaign. Burns recalls (Oct. 1999):

The electoral period removes everything and people go around. I remember one of the workshops held in the municipal cinema, there were people outside asking: Who is the candidate? Our meetings were well attended. This was a moment in which everyone was taking a look at what is going on in the municipality.

The following step in November and December 1996 was capacity-building and preparing the population to use the instruments of participation in the forthcoming context of the municipal election. They invited external experts, such as nationally known urban planners, and faculty members and students from UAM, to contribute to the collective capacity-building exercise. For instance, Burns and Alfonso Iracheta Cenacorta, the Director of Planning of the State of Mexico, explained how to make a Plan of Municipal Development and introduced various planning techniques to local inhabitants over various sessions.

### **Opening a window of opportunity**

Then, the official call to a leader of the population in January 1997 departed from the traditional municipal planning practices. Conducting a participatory Plan of Municipal Development including the population in the first fourth months after taking office is a requirement for newly elected municipal leaders; it is also an indispensable condition for accessing federal and state funding, which represents a high percentage of their budget.

Burns saw this call as an opportunity to conduct a more open and participatory process:

Then (in January 1997), there was a situation in which that instrument which used to be a mere requirement gained more currency and became an avenue for people to discuss what type of municipality they wanted. It is qualitatively different from political campaigns in which citizen participation is limited.

Moctezuma and Burns opened the process to the local population and to external experts. Particularly receptive were the groups previously involved in the women's, historical, participatory assessment, and capacity-building workshops. Invited by the local conveners and encouraged by the Deans of the three UAM campuses, about 70 faculty members and students – including biologists, ecologists, and hydrologists – conducted studies on municipal forests, hydrology, and waste management between October 1996 and April 1997 in order to scientifically document the collective decision-making process. Finally, students in social psychology also organized and facilitated meetings of the planning process, centered on themes such as water, municipal waste, forests, local economy, and culture. These meetings gathered audiences of 60 to 300 from all neighborhoods in the municipality.

A participant recalls the feeling of empowerment these meetings created (0707, 1999):

It was the first time that people were feeling that they could make a difference. They were learning that the old ways could be changed. People were so energized. Everybody was there. Some women and older people who had never dared speak started to talk about how life had changed here and how they were concerned about it.

This broad energized public involvement stood in direct contrast to the restricted and reluctant commitment of the newly elected municipal team. Led by Luis Alonso, the municipal government seemed to be permanently restricting the process. The frequent physical absence and reluctance to make any formal commitment on the part of the new

mayor in the public meetings reinforced the perception of distance some participants began to see between them and their new municipal government. Overall, very few heads of municipal departments were involved in the discussions.

### **Endorsing the plan**

On April 20, 1997, after 4 months of intense public participation, the mayor presented the plan to the population. In a public ceremony with more than 300 inhabitants, and a group of external experts, the mayor and his new municipal team officially endorsed the plan as the legitimate plan for the 1997-2000 period. As a display of agreement and commitment to the plan, the municipal team wore green t-shirts on which were written “*Tlalmanalco, Green municipality*”.

The municipality endorsed the four main strategies of the plan (Ayuntamiento, 1997):

1. *Natural Environment and Natural Resources*: (...) “conserve natural resources and use them rationally and consciously, (...) through the participation of the population, institutions of reforestation, soil conservation and improvement, improved law enforcement, treatment of solid waste and an awareness campaign on the care and use of resources” (p.78).
2. *Economy*: (...) facilitate, promote and coordinate effectively economic activities in order to generate employment and maintain existing jobs (p.79).
3. *Territorial Structure and Social Welfare*: “It is central (vital) to halt the deterioration of the natural environment and of the standard of living of the population. Thus our strategy consists of: (1) creating the conditions for reducing the deficit in existing public services; (2) integrating the conditions for public services and social equipment; (3) using equipment and infrastructure in communication and transportation” (p.80).
4. *Administration of the Municipal Government*: “the strategies adopted by the present municipal administration will aim to obtain political and economic coordination with the population, but also the orientation, stimulation, and support of the actions of individuals and social groups to accelerate municipal development” (p.81).

### **Changing the plan**

The municipal government submitted the plan to the Planning Department of the State of Mexico, which rejected the plan. The municipal government then significantly altered the second version without consulting the local constituents involved in the process. First, the

second version did not acknowledge the role of the local population. The first version named and credited the legitimate authors whereas the second version presented the municipal government as the sole author. Second, affecting the plan's use as a guide for collective municipal action, many points were reformulated in a vague and non-committal way. For example, the conclusions of the ecological objectives were (Ayuntamiento, 1997, p.78):

The set of (ecological) propositions expressed in the strategies are substantiated in the analysis as well as in the desirable objectives for solving the problems; these will be transformed into decisions that will allow concrete activities through programs and projects.

Finally, the content of the second version contained substantial modifications in terms of resources allocated for the plan's implementation. The links between the analysis – conducted by the participatory process – and the resources allocated by the municipal government in the altered version became tenuous. For instance, the first section of the plan – analysis – identified ecological and economic development-related issues as priorities for the municipality. In contrast, the second version of the plan allocated resources for urban and infrastructure works and none for ecological and economic development – issues that had emerged from the participatory process. Table 5.4 summarizes the central points of the second version of the plan and shows the weak links between the integral municipal analysis and resource allocation.

**Table 5.4: Central points of the revised Plan of Municipal development**

|                                 | Integral municipal analysis   | Resource Allocation (in budget units)  |
|---------------------------------|---|--|
| Ecology                         | Water is abundant but largely misused;<br>Forests: represent a burden for <i>ejidarios</i> , and are threatened by fires and illegal logging;<br>Agriculture: potential for the raising of rabbits;   | None   |
| Economy                         | Agriculture: traditional cultivation could be complemented with more intensive ones as well as cattle raising.<br>The development of forest management companies is our priority.<br>Craftsman should be promoted;<br>Strong eco-tourism potential.<br>Deregulation should attract new companies. | None   |
| Public Municipal Administration | Demands: education, paved roads, public lighting, sewage, sports and recreational activities, public security, potable water, electrification and communications.   | Street paving: 43<br>Education/ training: 31<br>Housing: 19<br>Administrative spending: 13<br>Healthcare: 4<br>Culture/Sports: 1<br>Public security: 1 |

**Source:** Ayuntamiento de Tlalmanalco (1997): *Plan de Desarrollo Municipal de Tlalmanalco (1997-2000)*.

### Closing the window

The episode of the Plan of Municipal Development had opposing outcomes. The municipal government met the legal requirement and obtained funding from state and federal sources which represent around 90% of the municipal budget in 1998 and 1999 (Ayuntamiento, 1999). However, the unexpected withdrawal of the municipality from the process led to the end of the collaboration with the local population and fostered distrust and resentment among the individuals involved in the planning process on both sides.

However, if the plan represented a frustrating opportunity for collaboration between the population and the municipality, it nevertheless led to a moment of ferment for the constituents. *Casa UAM Comunidad* and *Consejo Social Iztaccihuatl (CSI)* were established as organizations in March and June 1997 respectively. These two organizations institutionalized the relations that had developed before and during the planning process. *Casa UAM Comunidad* institutionalized the university involvement in the community as convened by Moctezuma and Burns while *CSI* was designed as an

umbrella organization for local civil associations interested in local ecological and cultural development.

### 5.3.2. Analysis: whatever happened to the Plan of Municipal Development?

The opening and subsequent closing of the window of opportunity revealed tensions in the process between the municipal government and Moctezuma and Burns, convenors of the local population. Alonso, as a representative of the municipal government, insisted on fulfilling a legal requirement while Moctezuma and Burns insisted on opening up the process. Moctezuma:

Clearly our agenda was to promote a participatory process and we accepted to engage in the plan for this reason. Fifteen times Luis Alonso and I had that conversation: ‘I want to open up the process, I want the planning to be participatory’. He never said yes.

These tensions in terms of exchange, coordinating mechanisms, membership and issues/stakes are summarized in Table 5.5 below.

**Table 5.5: Two practices of municipal planning**

|                         | <i>Municipal government: political bargaining</i>   | <i>Civil Society: a vision-building exercise</i>  |
|-------------------------|---|---|
| Exchange                | Requirement for state and federal funding.<br>Discrete demands and allocation of resources.   | Opportunity for community mobilization.<br>Generating of a common vision for the municipality and how to get there. |
| Coordinating mechanisms | Political bargaining with different groups in dyadic relations.<br>Allocating resources obtained from state and federal institutions to specific local interest groups.<br>Dyadic relations: municipal government is central and interest groups not connected. | Values: serving the community.<br>Use of mapping and visual techniques to build a vision.                           |
| Membership              | Based on membership to political parties.   | Open to the population and external experts.  |
| Issues/stakes           | Specific and discrete local problems and targetted resource allocation.   | Commitment and ownership of the decisions.  |

#### **5.3.2.1. Exchange: political resource allocation tool vs. vision-building exercise**

While the Municipal government viewed the plan as a requirement for funding the activities of the municipality, the conveners considered it a vehicle for building a common vision for the future of the municipality based on open community participation.

Burns highlights the potential of municipal planning processes:

There are many processes of urban planning going on, in which we observe a difference between the plans and what really happens in each municipality. What we are trying to do is to achieve a territorial planning that really gets implemented.

In contrast, the municipal government viewed it as a continuation of the political campaign. Alonso, the head of planning and coordination, points out:

We had been campaigning since the beginning of the year (1996) and we already knew what people wanted. We had gathered claims and elaborated our plan of government for the three years. Their plan was a good academic exercise, but it did not fit our hard administrative logic. You know, this is something one learns when one becomes part of the government.

The municipal government viewed the plan as a political bargaining tool, in which constituents exchange discrete issues and resources. The municipal government gathers separate claims from separate interest groups and then allocates resources obtained from the state and federal sources. The result of the political bargaining process is usually to divide the whole picture of municipal problems into discrete and short term claims as groups become concerned with their individual claims and omit broader and long term issues. Such a political bargaining process often results in street paving or public lighting claims in specific streets, as opposed to long term ecological actions. In contrast, Moctezuma and Burns viewed it as a process aimed to build consensus and a vision for the municipality in function of local natural, human and social resources.

#### **5.3.2.2. Coordinating mechanism: resource allocation vs. vision building**

The main difference between the two views, however, concerns coordinating mechanisms. The municipal government considered the planning exercise as a continuation of political bargaining which divides the population into interest groups and around specific issues. In this bargaining process, the municipal government coordinates the resource allocation process, as it collects and quantifies specific claims, and allocates

resources to the different interest groups. The municipal government maintains a pivotal role in this process, as it channels resources obtained from the state and federal institutions to various local groups in competition for these resources. It remains pivotal in allocating resources obtained above according to claims from below. Burns:

In the political campaign of each party, people from all parties collect and quantify claims and if there were 87 who wanted another school and 50 who wanted drainage and 40 who wanted pavement, then this was citizen participation. That's it. This is why when we did it here, it was something else. When a politician asks the people what they want, they just see their street paving needs in front of their own house. Changing this is part of our challenge.

On the other hand, Moctezuma and Burns promoted a vision-building exercise. Such a plan is an empowering process in which participants gradually build a vision of the municipality and mobilize their resources towards this shared vision. Burns (Oct. 1999):

We saw the official process (of planning in 1997) as an invitation for people to make a diagnosis in their own territory, think about their future and see what they have to do to reach their dream in the future.

#### **5.3.2.3. Politically delineated vs. open-ended membership**

While the membership of the political bargaining process is delineated by political parties, the process promoted by conveners from the population aims to open the process to a wider range of constituencies who exchange on a wider and interconnected range of issues. A participant recalls this cross-fertilization during the process:

(There were) women, farmers, people with different origins, economic situations, age groups, totally dissimilar, very heterogeneous. And there was very good chemistry. They liked one another a lot, a poor farmer who knew a lot on flora and fauna would speak with an elegant lady who gardens a lot. Women from the neighborhoods would speak with other ones interested in culture, intellectuals with manual labourers, people who could show their handicraft, and who had these common concerns... This was a very powerful process, something exhilarating, something with a lot of attraction, convergence, a gathering of very heterogeneous people, so that, when we presented the diagnosis, this was already a group.

#### **5.3.2.4. Issues and stakes**

The outcomes – in terms of issues and stakes dealt with – of political bargaining and of vision building exercises reflect the differences between the two processes. Political bargaining processes atomize issues and groups. As a result, demands from interest

groups most often deal with very specific issues, such as street paving and lighting. In contrast, the vision-building exercise promoted by the conveners encourages constituents to build a vision and a commitment as to how to attain it.

## **5.4. Collaboration 3: a champion of reforestation**

### **5.4.1. Record reforestation in Tlalmanalco**

The reforestation campaigns in Tlalmanalco in the 1997-2000 period have largely been recognized as an exceptional accomplishment in the local history and in the regional context. While the 1994-1996 Municipal Department of Ecology planted 14,000 trees, the 1997-2000 Department claims to have planted 1,500,000 trees. An official of *Probosque* (030100), the federal reforestation institution, indicates that:

What has been done in Tlalmanalco is extraordinary. Luciano's (the head of the Municipal Department of Ecology) energy made it. (...) He is one of the most involved. Without knowing anything when he started, after three years he more or less understands and knows, is involved, discusses, and analyzes.

Ironically, what is probably the main ecological contribution of the 1997-2000 municipal team is not an outcome of the Plan of Municipal Development, nor is it an idea from the main political municipal coalition; in addition, it was largely conducted without the support of the municipal government. First, while the Plan of Municipal Development for 1997-2000 assessed the ecological situation as "worrisome, degraded, and requiring urgent municipal coordinated action" (Ayuntamiento, 1997), it privileged resources to urban infrastructure over ecological action. Second, the low status of the Department of Ecology in the municipal government also reflected this lack of environmental concern<sup>30</sup>; this department had no funding from the municipal budget and was handed to Luciano Garcia Moreno, a leading representative of the PRI, the main opposition party who had

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<sup>30</sup> The municipal government is divided into ten functional Departments, a Secretary, and a Direction of Coordination and Planning. Of these ten Departments – such as Public Works, Water, Education, Agriculture, Health and Sports, and Tourism – Ecology is the 8<sup>th</sup>. The ranking of the Departments reflects the priorities and the allocation of funds of the municipal government and varies from one government to another. In 1997, Departments 1 to 6 were attributed to members of the PRD (*Partido de la Revolucion Democratica*), the winning party, 7 to 9 to the PRI (*Partido de la Revolucionario Institucional*) and the 10th to the PAN (*Partido de Accion Nacional*), second and third respectively in the electoral race.

lost the election. His nomination to this low profile department confirmed that his party had lost the elections, and the best Departments of the municipality:

'I felt punished. The Department of Ecology is a 'Department of punishment' with no budget and a low status. I thought: well my party has lost, I also have been punished. The PRD kept the best departments for themselves. And this is normal. This is the way the political game goes'. (Luciano Garcia Moreno, December 1999)

### **Being punished with Ecology**

Moreno felt powerless in the face of the municipal ecological situation. He viewed the problems as complex and mainly related to the attitudes of the locals. He points to the lack of ecological awareness as a main cause of environmental deterioration:

Well, the ecological situation here is worsening because of the lack of culture, the lack of sensitivity, the lack of awareness of the people, as they don't cooperate to improve the environment. And when I speak about the environment, I include everything in that word, I mean waste, taking care of water, reforestation, preventing tree cutting, of having a culture to better it. It includes everything.(280999, 5)

Furthermore, he perceived that his legal and organizational resources for acting on the situation were limited. First, federal and state ecological laws were difficult to enforce on a daily basis because of the locals' resistance. For instance, enforcing the ecological law on waste, on more than one occasion, he fined local inhabitants for littering in his presence. However, they reacted by telling him that he was abusing his position of power. Also, he identified the overlap of mandates between the federal, the state and municipal authorities as an obstacle to law enforcement. This confusion was further reinforced by the scarce resources in personnel in all of these institutions. Second, he did not get much support from the municipality itself either. The municipal government refused to allocate to his department the modest funds he needed for waste management in 1997 and 1998. Also, he found it difficult to work with other departments of the municipality on common problems, which increased his sense of isolation.

### **Finding a niche with reforestation**

In May 1997, the *Ejido de Santo Tomas*, which holds 303 hectares of forests, asked Moreno for resources to reforest their land. Moreno looked and soon realized that resources were available for reforestation: various state and federal institutions were more responsive to ecological concerns than the municipal government. He obtained trees free

of charge from SEMARNAP, the Federal Ministry of Environment, a car for an ecological patrol and a personal computer from the State of Mexico.

In June 1997, Moreno organized the first reforestation campaign for the summer – the rainy season – with the intention to plant 14,000 trees, based on the reforestation achieved by the previous Director of Ecology in the 1994-1996 term. He also promised the president of the *Ejido de Tlalmanalco* to reforest the ejido's lands. He recalls (August 1999):

‘There was a tradition of mistrust between the *ejido* and the municipality. We had never been able to work with them before, but I showed them that I wanted the best and that I was honest and of good faith, that there was no trick (*trampa*) in what I was proposing to them. And they accepted.’

The 1997 campaign was a success: with an objective of 14,000 trees, more than 214,000 trees were planted. Moreno realized that the former Director of Ecology had done little and that much more could be achieved. At the end of 1997, although the leader of the *Ejido de Tlalmanalco* was ousted for “poor management practices”, the new president decided to carry on with reforestation.

### **Scaling up**

Moreno mobilized more participants and set more ambitious objectives for the 1998 reforestation campaign. On the ground, four groups participated in reforestation from June to September. The first group, led by Moreno, was composed of labour provided by *Vivienda Digna*<sup>31</sup>, a poverty alleviation program. On Saturdays, groups of 100 to 150 individuals – mainly women and children – would go up the mountain in trucks to plant trees. Their work (*faenas*), from 9 a.m. until 1 p.m., was compensated with construction materials from the municipal government to improve their housing. The *Ejido de Tlalmanalco* funded the second group of temporary workers who work all summer long for 30 pesos (Can. \$4.50) a day. These brigades worked six days a week, slept in tents and returned to Tlalmanalco only at the end of the work week. The third group was

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<sup>31</sup> *Vivienda Digna* (House of Dignity) is an anti-poverty program established under the presidency of Carlos Salinas de Gortari (1988-1994) as part of Pronasol (National Solidarity Program). This poverty alleviation program is decentralized at the Municipal level; the municipality distributes construction material such as tiles or cement to the poor to improve their housing conditions. In return, beneficiaries have to work a certain number of days for the municipality in public works – including reforestation in the case of Tlalmanalco.

composed of the *ejidatarios* themselves who planted on week-ends on their lands. Finally, federal soldiers, called in by Moreno, also participated sporadically in 1998.

Every October, a public ceremony gathers the leaders of the *ejidos*, school children, the main participants of the reforestation campaign, a representative of the State of Mexico and closes the reforestation campaign. Moreno rewards the leaders of the *ejidos*, and the leader of the *Vivienda Digna* program for their participation in the reforestation campaign. At the end of 1999, Moreno estimated that more than 1,500,000 trees were planted in the three reforestation campaigns: 214,000 in 1997, 500,000 in 1998, and about 800,000 in 1999.

In December 1999, a few months before the end of his term as Director of Ecology, Moreno explained his success in the reforestation campaign with his personal motivations, his leadership, and the work of his team in the Department of Ecology:

‘We have to do something to save the planet. And I see myself as a person who fulfilled his responsibility because I made the necessary efforts. I worked a lot and demonstrated that I was committed and I put my hands in the dirt to do things. And doing that is serving the community, not staying in an office but working on the ground. Also, I see myself as a satisfied person because I was supported by a responsible team.’ (Moreno, 1299-220)

#### **5.4.2. Analysis of the reforestation campaigns**

Initiated by Moreno, the interorganizational collaboration concerning reforestation in Tlalmanalco involved the municipal Department of Ecology, the *ejidos* as land holders, beneficiaries of the *Vivienda Digna* poverty alleviation program and the Army, as labour. The collaborative effort resulted in more than 1,500,000 trees being planted in three years. Table 5.6 summarizes the exchange, coordinating mechanism, membership and the issues/stakes of the reforestation.

**Table 5.6: Analyzing reforestation**

| <b>Interorganizational collaboration</b> | <b>Reforestation</b>  |
|--|---|
| Exchange                                 | Material resources to conduct the task of reforesting.  |
| Coordinating mechanism                   | Moreno mobilizes resources for reforestation and allocates them to the different ejidos.<br>Moreno maintains a central position with dyadic ties to each of the ejidos and groups; Moreno decides on where to reforest. |
| Membership                               | Land holders and “captive” population such as Vivienda Digna for reforestation campaigns and school children for ceremonies.  |
| Issues/Stakes                            | Reforesting only: physical intervention in forest.  |

#### **5.4.2.1. Exchange**

The scope of exchange is limited to the activities of reforesting. Participants exchange material resources and physical labour, and the meetings of the reforestation commission are held four times a year. This commission coordinates the various organizations involved with the actual planning of the activities that take place on the ground in the wet season (July- September) – there are no attempts to exchange ideas or to redefine the situation in more open terms. An official of Probosque, the institution in charge of reforestation, confirms this situation (030100-23):

‘Collaboration of civil society is important in reforestation. We have limited means here. We can not go very far alone and they (civil society) has to understand that deforestation is everybody’s problem. What we expect from them is to give us a hand on the ground, in the forests. Very few people go spontaneously and reforest with us. This is sad.’

An ejido leader (1407-1999-45) confirms the non-threatening and unintrusive limited terms of the collaboration:

“They give us the plants and we reforest together. But everybody stays within their organization (cada uno en su casa). They don’t interfere with our business and we don’t interfere with theirs.”

#### **5.4.2.2. Coordinating mechanism**

Reforestation represents Moreno’s initiative in the municipal political bargaining process. Moreno, as an individual who mobilizes resources from the top and allocates them to the bottom, maintains a central position in the collaboration and keeps control. First, he has access to resources from above – plants, seeds, gas, labour, and some funding for

transportation. Second, he allocates them to the different ejidos through dyadic relations (Department of Ecology–ejidos). Third, there is no overall planning on where and how much to reforest based on technical expertise; Moreno decides on when and where to reforest. Moreno explains why:

‘Let’s be realistic. We don’t have to stick to programs and agreements. I think that what is written is right, but one’s individual judgement has to come first. We have to see the circumstances on a one by one situation’ (Moreno, 280999, 191).

#### **5.4.2.3. Membership**

The task-specific scope of reforestation convinced *ejidos* and the municipal government to engage limited resources in the venture. As a non-threatening and unintrusive collaboration, its limited scope guaranteed sustainability for the reforestation campaigns beyond the *ejido*’s organizational volatility and internal leader change. Ejidatarios recognize that reforestation is an activity necessary for maintaining the forest. Also, its low investment level made it acceptable to the municipal government, which provided labour from the *Vivienda Digna* program largely untapped before the reforestation.

In all, membership, however, has been limited to the land holders and to “captive” parts of population and not to broader groups motivated by local ecology. “Captive” parts of population are local groups that have no choice but to work with the municipal government, such as *Vivienda Digna* ‘volunteers’—who owe many days of labour to the municipal government, and school children—engaged in the closing ceremonies as a school activity. However, the task-specific scope made reforestation largely unattractive to ecologists interested in participating in the definition of the problem, as they find that reforesting does not address the more enduring ecological local problems. A local ecologist (0799-67) confirms:

‘Why should I go and reforest with Luciano? They want us to work with them, but we can not speak about the whole picture. And then, why should I work for the ejidatarios that will harvest the trees and do nothing for the community with the money after?’

#### **5.4.2.4. Issues/Stakes**

The paradox of membership in this reforestation process is that it ‘mobilized’ populations who have a low interest in ecology per se, such as *Vivienda Digna* volunteers, and discouraged local ecologists from taking part in the project. On the one hand, the groups who reforested did not engage in the project for ecological reasons, but rather because they owed the municipality a certain number of work days. On the other hand, locals interested in ecological issues did not find reforestation a vehicle for action since the scope, coordinating mechanism, and scope of exchange of the project restricted their role to hands-on concrete activities.

### **5.5. Collaboration 4: The Sierra Nevada Project**

#### **5.5.1. Civil society after the Plan of Municipal Development**

The process of the Plan of Municipal Development led to a clear separation between the newly elected municipal government and civil society. However, it energized civil society and led to the establishment of two civil organizations, the *Consejo Social Iztaccihuatl* (CSI) and the Casa UAM Comunidad.

#### **Consejo Social Iztaccihuatl (CSI)**

A group of citizens concerned about the local ecological and historical heritage was in the front line of, and engaged in, the process of the Plan of Municipal Development. Their involvement in the Plan of Municipal Development energized them but it also disappointed them in terms of the inability of politics to change local affairs and address their concerns. As a result, in June 1997, they decided to establish the *Consejo Social Iztaccihuatl*, in order to be able ‘to obtain resources from institutions for concrete projects and to achieve common concrete goals (*logros concretos*). Our objective is to become an umbrella organization for civil initiatives in the conservation of local culture and local natural resources’ (CSI, 1998).

Since 1997, the CSI has been a hotbed of local projects related to cultural and ecological activities. Their first accomplishment was the establishment of the municipal cultural center (*Casa de la Cultura*) established in 1997. Also, the historic parts of the municipality were in danger of being lost due to the misuse and lack of protection. In January 1998, their actions in the realm of historical heritage were successful. They had the municipal government move street vendors from the central historical square to the new one beyond the historical perimeter. The central historical square was designated a historical site and therefore protected by the National Institute for History and Archeology (INAH).

CSI has also collaborated with Casa UAM in the *Program for the Management of Regional Natural Resources of the Sierra Nevada (Sierra Nevada)*. This collaboration is discussed below.

### **Casa UAM Comunidad**

The second organization established in 1997 as an outcome of the process of the Plan of Municipal Development is the *Casa UAM Comunidad*. It is a bridging organization between UAM, a University in Mexico City and the local community of Tlalmanalco. In keeping with the mission of UAM<sup>32</sup> and as a continuation of the involvement of faculty members and students with civil groups since 1995 and in the early 1997 during the Plan of Municipal Development, *Casa UAM Comunidad* was established in April 1997 as (Casa UAM, 1998):

an interdisciplinary project in applied research and social service. Its objective is to encourage research projects linked with planning and sustainability in an area with abundant and vital natural resources threatened by the dynamics of the chaotic growth of the metropolitan area. It relies on the participation of more than 30 researchers and about one hundred students from the three campuses of the UAM.

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<sup>32</sup> Established in 1973, UAM X Campus Xochimilco (UAM, 2000; p 1), sets out its mission as:

redefining the role of higher education by linking teaching-learning (enseñanza - aprendizaje) with the problems of socially defined reality. In doing so, it attempts to establish new relations between fundamental elements of education and academic tasks of generation, transmission, application and diffusion of knowledge so as to socialize it.

Based on this mission, over the last three decades UAM has acquired a leading role in Mexico for research as well as for involvement in community development.

As of 1999, in concrete terms, *Casa UAM Comunidad* rents a building in Tlalmanalco that houses information pertaining to the region's natural resources and social dynamics. It also has meeting rooms for coordination with researchers; an office with four computers and four multimedia workstations (Proyecto UAM, 1999). This relatively small-scale bridging organization has supported a project of regional social and economic development based on the sustainable use of natural resources: the *Program for the Management of Natural Resources of the Sierra Nevada*, the mountain range which includes Tlalmanalco's forests.

### ***Sierra Nevada*<sup>33</sup>, the Program for the Management of Natural Resources of the Sierra Nevada**

#### **A regional problem: saving the Sierra Nevada**

The Sierra Nevada mountain range was identified by the Project for the Zoning of the Metropolitan Area of the Valley of Mexico (*Proyecto de Programa de Ordenación de la Zona Metropolitana del Valle de México, del D.D.F., SEDESOL y el Gobierno del Estado de México*), as an area rich in forest resources, irrigation potential, and water table replenishing. It highlighted that the “extensive and uncontrolled urban sprawl into this last bastion of natural resources in the region has to be avoided” (UAM, 2000).

*Sierra Nevada*, as an initiative that links applied research and community participation, aims to contribute to save the Sierra Nevada. It proposes to elaborate a development model capable of containing the unsustainable urban sprawl by developing local natural resources (Casa UAM 1998). Its general objective is to support local initiatives using applied academic research and techniques in order to transform the Sierra Nevada region into a green belt of micro-projects to contain the encroaching city and the destruction of the region (UAM, 2000).

From a legal standpoint, *Sierra Nevada* is an agreement between *UAM (Universidad Autónoma Metropolitana)*, *Semarnap* (the Federal Ministry for Environment), *Sedesol* (the Federal Ministry of Solidarity) and the state Ministry of Ecology (*Secretaría de*

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<sup>33</sup> Programa de Manejo de Recursos Naturales de la Sierra Nevada.

*Ecología del Gobierno del Estado de México*). Its geographic scope includes 12 municipalities in the Eastern area of the State of Mexico: Tlalmanalco, Amecameca, Ozumba, Atlautla, Ecatzingo, Tepetlixpa, Ayapango, Chalco, Juchitepec, Temematla, Tenango del Aire, Cocotitlán (Casa UAM, 1999).

*Sierra Nevada* has identified five dimensions of the current regional challenges and proposes five responses. These challenges deal with (1) the low performance and legitimacy of current community-based forest management organizations—namely the *ejidos* and *bienes comunales*; (2) the loss of the ties between the local population and their natural environment; (3) the erosion of a sense of belonging to a local community; (4) the division of local groups by the political system; and (5) the economic problems of the region. Table 5.7 summarizes the dimensions, challenges and responses of *Sierra Nevada* to the regional situation.

**Table 5.7: Dimensions, challenges and responses of *Sierra Nevada***

| Dimension  | Challenge   | Responses   |
|--|---|---|
| 1. Community as continuous with local tradition of collective management of natural resources. | The legitimacy and performance of current community-based forest management are challenged.   | Reclaiming community-based management beyond current organizations such as municipalities and <i>ejidos</i> that “represent” the community. Community-based management as a participatory process involving various local organizations.  |
| 2. Community as geographic embeddedness.   | Urbanization makes people lose connections with their natural environment: water, earth (soil), forests.  | Promoting geographic literacy:<br>(1) Collective mapping exercises, participatory environmental appraisals, municipal atlases.<br>(2) Monitoring the management of natural resources in Sierra Nevada.  |
| 3. Community as a “collective”/ “Gemeinschaft”.  | Current municipal boundaries and urban sprawl challenge a sense of regional belonging.  | Organizing regional encounters of theatre (1996), of small producers to encourage cross-fertilization and create regional horizontal links.   |
| 4. Political system.   | The current administrative system divides the area into municipalities whose territories don’t correspond to ecological units.<br><br>The current political system dominated by the three parties divides issues and interest groups. | Redefining management units along ecological boundaries: watersheds, ecosystems and natural regions.<br>Maintaining <i>Sierra Nevada</i> as an apolitical and value-based project.<br>Using the existing planning processes in the current institutional framework in order to generate local vision. |
| 5. Regional economic situation   | The current economic situation contributes to the deterioration of natural resources.<br>Lack of local value creation/ transformation of natural resources.   | Fostering participatory, community-based productive projects transforming local natural resources.  |

Elaboration by the author based on interviews of participants and Sierra Nevada documents.

### **Dimension 1: To go beyond the current natural-resource management regime**

*Sierra Nevada* highlights that the legitimacy and the performance of current community-based forest management are currently challenged. Although most land is held by the *ejidos*, these organizations established by the revolution and land reform fail to represent the local population. In mere numerical terms, in Tlalmanalco, 80% of the land is held and managed by 167 *ejidatarios*, or about 0.2% of the population. The performance of the *ejido* in delivering the social mission is also under scrutiny as it has not contributed in a

meaningful way to the community since the 1960s. From an administrative standpoint, the *ejido* doesn't report to the municipality but to the Secretary of Agriculture and to Semarnap, the Ministry of Environment. As a consequence, locals concerned about forest management have no way to express their concerns on the practices of ecological management. Participants of *Sierra Nevada* have identified a great disparity between the interests of the institutions that run the community. While *ejidatarios* have their eyes on short-term profit and tend to neglect others' concerns, members of the municipal government are not compelled to intervene to protect the forests because they have their own agendas. Generally, the mayor and directors of departments (*regidores*) are unwilling to intervene because doing so will create conflict with the *ejidos*. Maintaining the status quo, however, means that the members of the municipal government can put in their three years without incident and then move on. A participant in *Sierra Nevada* pinpoints this divergence between the municipal government and the *ejido*:

There is a divorce between institutions in charge of the community. *Ejidatarios* just think of their short-term profits and are very self-interested. Members of the municipal government are not interested in intervening to protect the forests either. This would mean conflict with the *ejidos* and *regidores* (Directors of Departments) just want to make it for three years and go. (1809. 1999 - 45)

*Sierra Nevada* proposes to reclaim community-based management beyond organizations that currently represent the community. A source of inspiration is the historical tradition of natural resource management in the region. In the fifteenth and sixteenth centuries, the population was organized in units of twenty families called *calpullis* that managed fields collectively, building terraces and water ponds for irrigation for intensive agriculture and horticulture. Their income from forest management was only supplementary (UAM 2000, p.26). More recent examples of community management are water management projects by local water commissions (*Comisiones de Agua*). These water commissions have managed water in Tlalmanalco since 1906 through participatory, decision-making schemes and voluntary work (Moctezuma, 2001).

*Sierra Nevada* proposes to build on these local traditions of community participation in natural resource management to enhance a broader and more participatory process involving various local organizations at the regional level.

## **Dimension 2: To overcome the loss of geographic embeddedness.**

The second challenge *Sierra Nevada* has identified concerns the links between locals and their land. Urbanization makes people lose connections with their natural environment: water, earth, and forests. Burns, one of the convenors:

This is part of our challenge... part of the work we are trying to do is to help people reappropriate their space because, in the urbanization process, people gradually lose the connection with the forests, with the earth around them and their vital space becomes their house, their yard, and the street in front of it and they don't think about anything else. They don't feel responsible for more than this (limited space). (...). What we are trying to do is to get people to see and to get connected with (their natural environment) and say: "These are our forests, if there is a fire we care and feel responsible for putting it out". It is about reconnecting them and developing these resources together. (Burns, Oct. 1999)

The response proposed by *Sierra Nevada* is a program of geographic literacy<sup>34</sup> which included three complementary activities. The first concerns collective mapping exercises and environmental appraisals (*diagnosticos*) at various levels, such as *ejidos*, neighborhoods, and municipalities. The second step is the publication of the municipal atlases of natural resources by *Casa UAM Comunidad* for the 6 municipalities in the region. The atlases contain comprehensive and up-to-date information on the opportunities and challenges related to natural resources management; the findings of these appraisals at the municipal level are made available in order to foster a better understanding of the issues and help decision-making. The third aspect concerns the training in environmental monitoring in the region of the Sierra Nevada. During these training sessions, locals are trained to use indicators of sustainability and GIS (Geographic Information Systems) techniques to assess the management of the forests, the use of water, and the degree of maintenance of earth in their communities. Table 5.8 below summarizes these activities in geographic literacy.

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<sup>34</sup> For its *geographic* literacy program, Sierra Nevada has also received assistance from *Consejo Social Iztacihuatl* (CSI), the Mexican Fund for Nature Conservation (*Fundo Mexicano para la Conservacion de la Naturaleza*), and the UNDP (United Nations Development Program).

**Table 5.8: Activities of Sierra Nevada in geographic literacy**

| Project                     | 1- Participatory and technical appraisals of soils, water and forests             | 2 - Atlas   | 3 -Training in environmental monitoring  |
|-----------------------------|---|---|--|
| Time span                   | 1997-1998   | 1999-2000   | since 1999   |
| Level                       | <i>ejido</i> , municipal  | municipal and regional  | regional   |
| Collaborating organizations | Departments of Social Work, Environmental Studies - <i>UAM</i> , and <i>CSI</i> . | <i>UNDP, MFNC, Mexico State Government, SEDESOL, SEMARNAP, CSI, GIS, UAM.</i> | Regional high schools, <i>ejidos</i>   |
| Outcomes                    | Participatory appraisals of 6 municipalities.                                     | Atlas of 3 municipalities in 2000, 3 in 2001.                                 | Handbook of indicators of sustainability of resource management. Training of 130 teachers in GIS techniques and in using indicators of sustainability. |

Sources: Casa UAM, 1998; Moctezuma, 2001.

An organizer of these participatory appraisals recalls (Oct. 1999):

I am fascinated by the collective map-making. I am always surprised by the way people perceive their own territory. And I learn a lot about the territory itself. Older people have a better sense of their territory and of its history. This is very impressive.

This program of geographic literacy and the claim for the continuity with traditional community-based management were designed to rebuild community as a sense of the continuity of common history and community as a sense of place. The third dimension of Sierra Nevada is to create horizontal links of community, as a sense of belonging to a regional group linked by common problems.

### **Dimension 3: To go beyond current administrative boundaries**

*Sierra Nevada* estimates that current administrative boundaries contribute to making the problems of natural resources less manageable. At the municipal level, departments work together only on an ad hoc basis. At the inter-municipal level, municipal governments have very few connections to themselves. This overall absence of connections at the municipal and regional levels restricts the ability to generate common responses to complex regional problems.

*Sierra Nevada* has proposed to network and organize thematic regional encounters to build new connections. Tezcaltepetl (“a mirror for our city”) was the first network

established in 1994 as a follow up to an environmental workshop held in Tepetlixpa. Its focus has been on local economic development and on cultural issues. A second type of network-building tool is the regional meeting for sustainable development (*Encuentros regionales para el desarrollo sustentable*), held annually in a different locality: in Tlalmanalco in 1997, in Tepetlixpa in 1998, and in Ozumba in 1999. They gather hundreds of participants from the whole region, who share experiences at thematic meetings on issues such as health, agro-ecology, recycling, community radio and television channels, the establishment and management of a community-based museum, eco-technologies, environmental education and youth (Moctezuma, 2001, p.129). Finally, the Encounters of Theatre (1996) have been held each year since 1996 and aim to keep the regional oral traditions alive.

#### **Dimension 4: To go beyond current political divisions**

The current political system tends to divide the population and the issues. The reluctance of the newly elected team in the Plan of Municipal Development in Tlalmanalco in 1997 gave evidence that the kind of change brought about by political parties is limited. A former participant in the Plan of Municipal Development who represented the municipal government (280999-78):

'I don't see my country improve thanks to political parties, I see my country improving thanks to civil organizations; when small groups in all neighborhoods start getting together and grow, reaching an incredible strength. Citizen organizations will get Mexico out of its problems. Political parties just don't work for this'.

The current political system and its process of political bargaining divides issues and groups at the regional, municipal and intra-municipal levels. At the regional and municipal levels, administrative boundaries divide the region's common problems – threatened forests, water resources, and urban sprawl – into separate municipal boundaries, which limits the capacity for common regional problem resolution. Very few problems are addressed beyond the municipal level. At the municipal level, “political parties keep people apart” (*Los partidos parten*) and municipal politics are more interested in individual short term issues than long term collective interests, whatever the party they belong to. Hence the opinion:

For me, (I wish) municipal authorities were real authorities, not opportunistic groups looking for power positions just to take away as much as they can, this is regardless of their political affiliation.

*Sierra Nevada* proposes to redefine management units along ecological boundaries, such as watersheds, ecosystems and regions in order to enhance cross-vertical links that will enhance common problem-resolution. In order to avoid the rifts among political parties, *Sierra Nevada* remains an apolitical, and value-based project. Finally, *Sierra Nevada* proposes to use the existing planning processes in the current institutional framework, such as the Plan of Municipal Development, as tools for generating local visions.

### **Dimension 5: To go beyond the current regional economic crisis**

*Sierra Nevada* identifies the economic dimension of natural resource management problem (Casa UAM, 1998, p.5):

The current crisis in the region results from poor organization of its natural and human resources. *Sierra Nevada* aims to foster the local economy and reorient the inadequate current management through the encouragement of productive projects of sustainable management, highly visible and easily replicable, so as to create the basis for a model for sustainable development.

*Sierra Nevada* aims to create a hot bed of micro-productive projects, including training, the encouragement of cooperation between local micro-projects, including three aspects: (1) community-based forest management and sustainable regional development; (2) training in capital management for productive projects; (3) training in administrative and strategic planning techniques for community based enterprises. Researchers and students from *UAM* coordinated by the *Casa UAM Comunidad* contribute to these specific projects.

Examples of these micro-projects in Tlalmanalco include among others *Yollotlalli* (in collaboration with *CSI*), *Bosque Escuela* (with *CSI*, *UAM*, *Sedesol*), and *Ixchel de los Volcanes* a Women's Health Project (with *CSI*). *Yollotlalli* is a waste management unit with ten employees that collects and recycles about one third of the municipal domestic waste. *Bosque Escuela* is a 64 hectares ecological park located in the edge of the urban area in San Rafael, a neighborhood of Tlalmanalco. Its objective is to educate the public on sustainable forest management practices. The *Ixchel* Project was established in May

1997 as a small producer of alternative medicines using local herbs based on traditional recipes.

### 5.5.2. Analyzing Sierra Nevada

Table 5.9 summarizes the dimensions of Sierra Nevada.

**Table 5.9: Sierra Nevada**

|                                   |   |
|-----------------------------------|---|
| Interorganizational Collaboration | <i>Sierra Nevada</i>  |
| Exchange                          | Diverse<br>Material and perceptual resources.<br>Traditional knowledge and formal/scientific expertise.   |
| Coordinating mechanisms           | Vision-led: building community as a central value for collective action.<br>Visionary leadership and individual commitment.   |
| Membership                        | Open and heterogeneous: locals and non locals, civil society, experts, academia, municipal and regional associations.<br>Individuals willing to commit time and energy to a concrete project. |
| Issues/Stakes                     | Regional, open-ended.<br>Geographic literacy, social capital building, and economic productive projects.  |

#### 5.5.2.1. Open-ended exchange

As described in the previous section, the scope of exchange of *Sierra Nevada* is open-ended; it includes perceptions, material resources and task-specific dimensions, traditional knowledge and formal/scientific expertise.

#### 5.5.2.2. Coordinating mechanisms

Coordination is attained through (1) visionary leadership and (2) the process of reclaiming “community”. First, Moctezuma and Burns’ personal experience, commitment, and their roles in the sustainable development of the region have contributed to creating and sustaining the regional, multi-thematic network. Moctezuma has 25 years of experience in community development as a former leader of social movements in deprived areas of Southeastern Mexico City. Also, as a professor at UAM since 1980, he is the author of two books (Moctezuma, 1988, 2000) and numerous articles

on urban social movements. Burns worked with social movements in Chile and Nicaragua and has been active in women's movements in Mexico for more than a decade. After their decision in 1943 to leave Mexico City to raise their child in a healthier environment, Moctezuma and Burns looked for a new community in the Eastern part of the Metropolitan area. Moctezuma, (051199):

We explored the region of the South-Eastern part of Mexico City and in 1995, I was invited to facilitate a workshop in Tepetlizpa. The dynamics of regional analysis emerged from this workshop. We worked very well with people from 13 municipalities and Tescatepetl was established....and only in 1995-1996, we realized that where we were living, in Tlalmanalco, there were good conditions to work, such as a poor neighborhood where many women were worried and willing to begin to get organized with Elena in a group. I then started to call students (from *UAM*) to conduct community appraisals. (051199)

Moctezuma's main roles in *Sierra Nevada* have been (1) to facilitate participatory processes and (2) to bridge local community needs with external expertise. He built on his experience with urban social movements to facilitate participatory processes in the *Sierra Nevada* region (051-11-999):

I was used to large scale participatory processes, sometimes with 10,000 people, with young migrant families struggling for their basic needs and infrastructure, such as access to water and sanitation and light. Here, processes are much smaller and very often the most motivated participants are older, local, well-established people who have a feel that the local situation has deteriorated.

Also, as a professor at *UAM*, he has motivated more than 70 faculty members and students to put their expertise to the service of the region. As a high profile expert in urban planning, he convened many experts from state and federal institutions to participate in specific projects.

Burns' roles have been (1) to formalize agreements between *Casa UAM* and other constituencies, (2) to design processes and methodologies for group-building, (3) to lead and conduct the geographic literacy program from its inception to the participatory analysis and finalizing the atlases, and (4) to manage *Casa UAM* on a daily basis.

Their personal commitment to the sustainable development of the region has materialized in the construction of their ecological house in the village of Zenchantli, close to Tlalmanalco, made with material from the region and using ecologically-friendly techniques.

Moctezuma and Burns have also brought a philosophy for action centered on “community-building” which has crystallized the concerns of the local population about the current regional deterioration. “Building Community” represents a central orientation for coordinating and giving sense to the heterogeneous activities conducted by different groups in the region. The three dimensions of community include (1) reconnecting past practices of community-based natural resource management with the future of the region through the building of new connections among organizations, (2) reconnecting with a place through an increased awareness in the sense of local belongingness, and (3) reconnecting with other members of the region through the nurturing of ties and social capital. For instance, a *CSI* document highlights the contributions of *Sierra Nevada* (CSI, 1998, p.14):

Our group has increased the importance of the role of the community in the defense of the natural environment, the economy and local heritage. (...) Our organization has become a school for learning a democratic use of power, as a force for emphasizing the democratic and honest use of legal tools for popular participation. (...). What has really made a difference is our link with *Sierra Nevada*, which has given us technical and scientific techniques for strengthening our initiatives. They have also provided us with a regional forum for connecting with other civil organizations.

*Sierra Nevada* has provided support for strengthening individual organizations while connecting them with other non-governmental organizations.

### **5.5.2.3. Open-ended membership**

As described in the previous section (5.5.1), membership is open to all individuals and organizations concerned with the sustainable development of the Sierra Nevada, regardless of their political or organizational affiliation. The coordination based on vision-building and the leadership exemplified by the personal commitment of the convenors has attracted many experts who work in traditional organizations but are frustrated with the limited capacity of their organizations to bring about concrete and effective actions to address complex local problems. In the 1996-1999 period more than 50 organizations, including local small producers, civil associations, ejidos, schools, universities, state-level and federal ministries, private foundations, and international organizations, have worked with *Sierra Nevada*.

#### **5.5.2.4. Issues and stakes**

These diverse organizations and participants have engaged in very heterogeneous actions, from concrete, small scale productive projects to the geographic literacy program – all centered on the sustainable development of the *Sierra Nevada* region.

### **5.6. Conclusion of the chapter**

This chapter has analyzed how the patterns of organizing – in the form of interorganizational collaborations – have emerged and evolved in forest management in Tlalmanalco in the 1996-1999 period. This detailed description and analysis highlights three findings.

The first finding concerns interorganizational collaboration, the institutional innovation under study here. The detailed examination of the four cases of interorganizational collaboration suggests that two forms of collaborations simultaneously occur in the domain. Figure 5.1 summarizes these two forms of collaboration. Collaborations represented in the upper right quadrant, are open-ended and heterogeneous in their membership and open in their problem definition. These collaborations aim to build a vision that will orient collective action. Examples of such collaborations include the process of the Plan of Municipal Development as convened by Moctezuma and Burns and the *Sierra Nevada* Project. Collaborations represented in the lower left quadrant are bound in their task and in their membership; they address specific issues. Examples of such collaborations are the logging plan – with a membership limited to land holders and accredited forestry engineers, for the process of timber logging only – and reforestation – limited to the actual task of reforesting.

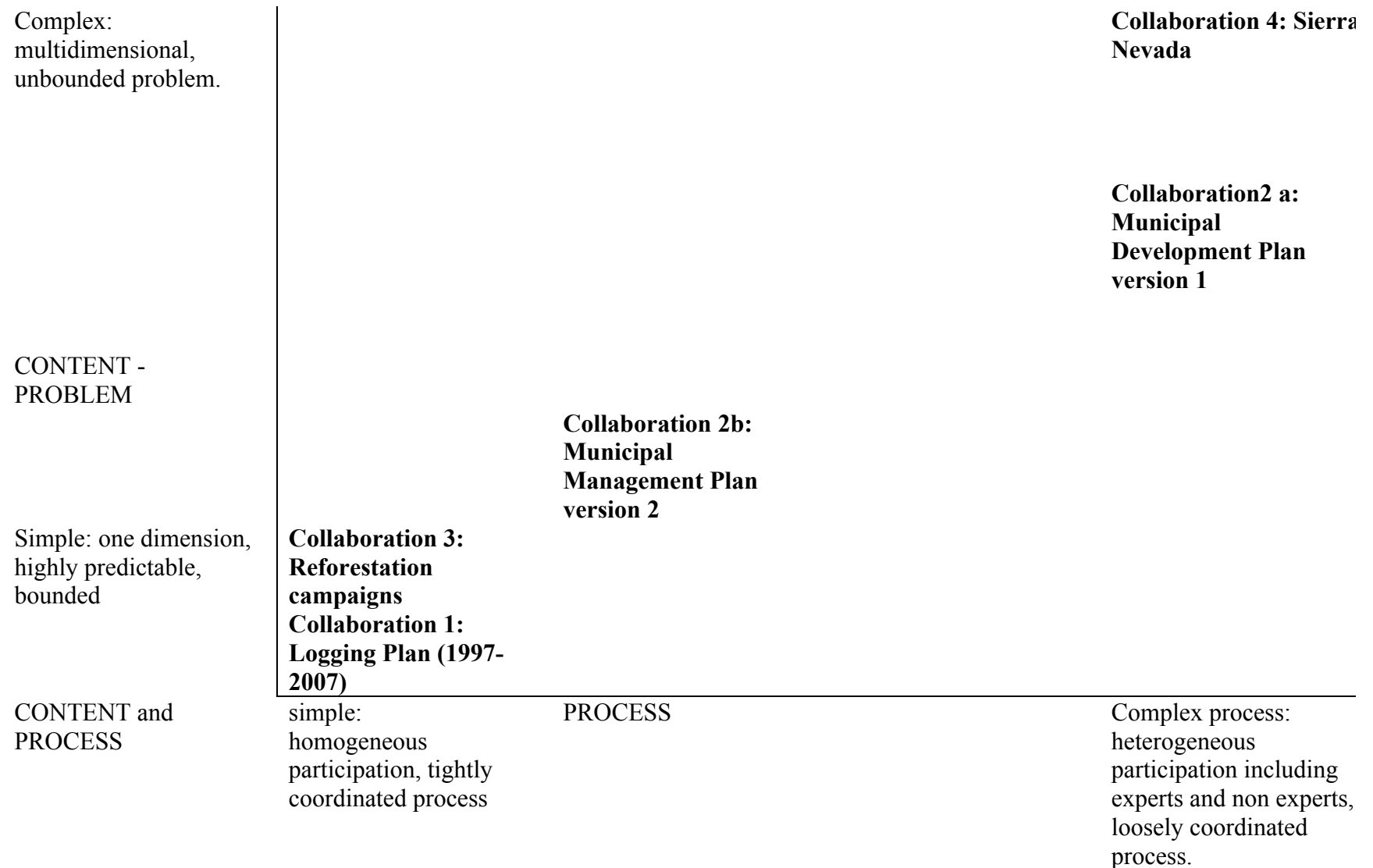
The second finding concerns the role of organizations in adapting this institutional innovation. On the one hand, the ejido and the municipal government prefer a limited involvement in low intensity collaborations such as the reforestation campaigns and the

logging plan. Organizations engaged in these collaborations engage primarily material resources to conduct tasks limited in time and scope coordinated by a simple mechanism. On the other hand, *CSI* and *Casa UAM Comunidad* enhance high intensity/high involvement collaborations such as Sierra Nevada with heterogeneous participation, open-ended content, and coordinated by visionary leadership. The clash in the Plan of Municipal Development between this low intensity/ low involvement level from the municipal government and high intensity/high involvement level from the population organizations confirms the “co-existence” of these two dynamics in the same domain.

Finally, from the perspective of forest management, each of these collaborations defines the problem in a specific way. As seen from the logging plan, forest management is an issue limited to timber logging conducted in a process of formulation/implementation. For the Director of Ecology, the challenge is about quantitative reforestation. For *Sierra Nevada*, the issue deals with the regional social and economic development based on the sustainable use of natural resources as an attempt to limit the expansion of the neighboring metropolis by the construction of a green belt between the Sierra Nevada and the Metropolitan area. These collaborations also suggest that various problem definitions co-exist in the same domain.

The next chapter builds on the chapters on institutional cycles (Chapter 4), and builds on this chapter on patterns of organizing, and identifies the main contributions for research on institutional change and natural resource management.

**Figure 5.1: Low and high intensity collaborations**



## Chapter 6: Conclusions

This chapter summarizes the findings of this study on institutional change in forest management, proposes conclusions for research on institutional change and natural resource management and identifies future research avenues. It contains six sections.

I first restate the research postulates and the inspiration for the study. Second, I summarize the main empirical findings on forest management in Tlalmanalco based on the examination of the institutional cycles, and identify the main traits of these institutional cycles. Third, I describe and analyze the present situation of forest management, and highlight the findings of the analysis of the recent patterns of organizing observed in the 1996-1999 period. Fourth, I propose theoretical implications for institutional change based in particular on the two research concerns of this study: the macro-micro links and the phase of transition between institutional templates. The fifth section discusses the implications of the study in the potential role of communities in natural resource management.

### 6.1. Research postulate and inspiration for the study

#### 6.1.1. Research postulate

Weick (1979) called on organization researchers to be aware of the type of research they conduct, as well as the limitations of their findings. He proposed that researchers decide to emphasize either *accuracy* – a detailed representation of processes, *generality* – abstraction towards pure theory-building, or *simplicity* – applicability of central concepts and models to various empirical situations. In this study, I have emphasized accuracy. This decision for a largely ideographic study is consistent with the choice of research focus (domain level of a locale over 120 years), research design (single case study), and combined strategies for analyzing process data (contextualist approach and grounded theory procedures) (Langley, 1999). As such, in this ideographic inquiry, I have considered data as elements in configurations (Miles & Huberman, 1994). The intention

here was to explore the multifaceted texture of the linkages among configurations of variables and to understand associations, causes and effects within the case and ‘to find specific consistent, historically grounded patterns’ (Miles & Huberman, 1994, p.172). The research was more driven by the richness and the complexity of data, by the need to make sense of the nuances of “what was going on there” than by the sheer concern for theory-building. Thus, although the findings of this research are built from the context of Tlalmanalco and Mexico, I draw conclusions for future research on institutional change and for practical concerns in natural resource management.

However, this study responds to two recent calls from leading management researchers. First, this study responds to Dacin’s (2002) call for institutional research that includes longer periods of time and that examines different forms of change – including incremental as well as radical processes. Second, this study also responds to Pettigrew’s (2001, p.699) call for a better understanding of the micro-macro connections through the examination of the interaction between the two levels over a long period of time. This empirical study of the history of management institutions at the domain level is important for institutional theory as this research field does not have many cases of ideographic research over a long time span.

More broadly, this historiography regarding management institutions and organizations is also unusual in the field of management studies. This study is not a hagiography praising specific groups or individuals, nor is it the biography of a given organization.

### **6.1.2. Research inspiration**

The intellectual inspiration for this study came from Selznick’s research on TVA. *TVA and the Grassroots* (1949; Reed. 1966) still represents a milestone for the study on an institutional innovation, born about 60 years ago, as well as the cornerstone for later development in institutional theory of the organization. Selznick examined the implementation of the grass roots doctrine in the TVA organization over a year and

showed how the cooptation of some local groups, necessary for the implementation of the policy, eventually affected the character of the organization, and led to deviation from the initial policy objectives.

In this study, I have tried to follow the skeptical and ‘scrutinizing’ spirit that guided Selznick’s inquiry, while broadening its scope of analysis. I have examined how institutions were implemented and replaced by other institutions within an interorganizational domain over a period of 122 years. The constant ‘unit of analysis’ of this study was the conversations between organizations in the institutions that presided over the management of the 10,000 hectares of forests of Tlalmanalco, Mexico. This study examines the broad institutional cycles of forest management over 120 years (1877-1996) as well as the recent patterns of organizing, in the form of interorganizational collaborations in the current transition period (1996-1999). The institutions considered here are forest management regimes.

## **6.2. Learning from history**

### **6.2.1. Institutional cycles (1877-1996)**

Chapter 4 presented the history of the institutions of forest management. It examined the institutional cycles of forest management in Tlalmanalco between 1877 and 1996, and emphasized particularly how national policies influenced local forest management in Tlalmanalco in the different management eras and how transitions between these institutional templates occurred. These cycles are summarized in Table 6.1.

**Table 6.1: Summary of the four institutional cycles of forest management (1877-1996)**

| <b>Institutional cycles</b>              | <b>Direct Investment/Elite (1877-1910)</b>  | <b>Communitarism (1910-1940)</b>  | <b>State-led Industrialization (1940-1991)</b>   | <b>Community and Participation (1991-??)</b>  |
|--|---|---|--|---|
| Philosophy for forest use.               | Scientific forest management.   | Communitarism, conservation for the Nation.   | Industrialization and rationalization of forest management: timber only.   | Social inclusiveness, social appropriation and variety of uses.   |
| Role of the central national government. | Provide incentives for investors.   | Allocates land and provides legal framework and protection.   | Tight control: sets and enforces rules and roles.  | Provides resources: material, legal, and expertise.   |
| Dominant organizational template.        | Hacienda  | Ejido   | Forestral: affiliated with industrial users and national agency.   | NGOs, connections between organizations.  |
| “Heroes”                                 | Investors: Hacendado, yeoman farmer, agricultural entrepreneur. Industrial entrepreneurs. | Small landholders members.  | Forestry engineers holding legal/technical expertise.  | Convenors, charismatic leaders, boundary spanners.  |
| Membership – included                    | Masters: investors and hacendados.  | Small group /members engaged in land reform movement after the revolution (1910-1930) or co-opted later by ejidatarios. | Company and forestry engineers.  | Anyone willing to engage.   |
| Membership – excluded                    | Farmers   | Non-ejidatarios   | Non-ejidatarios, ejidatarios   | No one  |
| Blind spots                              | Social and economic exclusion of the large majority.                                      | Too tightly designed: frequent problems of accountability and governance. Dependency vis-à-vis central government.      | Reinforces lack of interest of ejidatarios in forest management and internal organizational pathologies. Non-learning. | Its “unstructuredness” may lead to co-optation for the maintenance of status quo and the elusiveness of central concepts (myths of “community” and “participation”) may lead to vulnerability and deviations. |

Elaboration by the author

#### **6.2.1.1. The institutional cycle of elite entrepreneurship (1877-1910)**

The first cycle (1877-1910) favored elite entrepreneurship, which translated locally on the organizational templates of the privately owned haciendas and the large foreign-owned Company. As a consequence, forest management was given, in the form of concessions, to large industrial users who prevailed over the farmers and their traditional subsistence community-based forest uses. In Tlalmanalco, the benefiting organizations were the haciendas, and after 1890, the San Rafael Company. The system of relations between these two organizations was what Selznick (1967) refers to as master-servant relations.

However, this era also led to precarious living conditions for the majority of the population. This exclusion from the economic benefits and from decision-making processes set the conditions for the nation-wide 1910-1920 revolution.

#### **6.2.1.2. The brief cycle of communalism (1910-1940)**

After revolution and land reform (1910-1920), the second era (until 1940) promoted communitarianism and established the *ejidos* as the main land and forest holders. The *ejidos* became the organizational template, since they embodied local, small-scale community-development. The implementation of this institutional template was slow and partial; it took approximately fifteen years for *ejidos* to be allocated lands – they actually never received full land tenure titles. This slow and incomplete land reform contrasted with the fast pace in which land was distributed to haciendas and to the San Rafael Company in the previous management era four decades before (Huerta Gonzalez, 1994). Also, this bottom up, agrarian, small-scale development model did not resist the national policies for state-led, large-scale industrialization, the backbone of the Mexican development strategy (Simonian, 1995).

### **6.2.1.3. The Mexican modern development model (1940-1991)**

In the region of Tlalmanalco, the presidential decree of 1947, which followed the 1942 national forestry law, favored the interests of the San Rafael Company over those of the farmers grouped in *ejidos*. Thus, the third era (1940-1991) favored industrial users and imposed the implementation of scientific forestry management techniques to provide a steady supply of timber to the company. The main organizational template in forest management became the *Forestal*, an organization that supplied forestry expertise to the Company on lands officially held by the *ejidos* but given in the form of concession to the Company in 1947. The economic collapse of the San Rafael Company in 1991 was caused by its inability to adapt to a growing competitive national paper industry increasingly open to foreign competitors. The end of this era also corresponded to a broader crisis in the Mexican model of development centered on import substitution relying on state-led investments and protected by high tariff protections (Haber, 1989). The management institution that is currently emerging in the 1990s will be examined in detail in sections 6.3 and 6.5.

### **6.2.2. Main traits of the institutional history**

Beyond the characteristics of each of these regimes, what can we learn from the history of management institutions? What are the historical patterns of forest management institutions? Table 6.2 summarizes the main traits of the history of management institutions.

**Table 6.2: Main traits of the history of management institutions**

| <b>Forest management institutions have...</b>  | <b>Illustrations</b>   |
|--|--|
| ... not been designed according to local social dynamics.  | The philosophies of management institutions have been external to Tlalmanalco; change has been imposed from above.   |
| ... not been responsive to ecological dynamics.  | Management institutions (elite entrepreneurship, communalism, scientific forest management, and participation) have been decided according to the political/social agenda; they have not been designed according to ecosystems dynamics. |
| ... not been conducive to social and technical learning.   | Ejido's volatile and powerless situation in the 1990s: limited capabilities and limited knowledge of forest management.<br>Technical learning is limited to the expert knowledge of forestry engineers.                                  |
| .... led to the formation of uneven situations and thought worlds among stakeholders                 | Coexistence of remote thought worlds in the 1990s: farmers' vs. engineers' world views (see Ch. 4).  |
| ... evolved abruptly: radical change has prevailed over incremental change.                          | 1910-1920 revolution.<br>1940s: implementation of scientific forest management.<br>1991 collapse of the San Rafael Company.  |
| .... been part of larger institutions that created blind spots which eventually led to their demise. | Cycles of institutional template – misbalance – new institution – misbalance.  |

Elaboration by the author

The four first traits of the history of forest management concern the content and effects of the institutions:

1. Forest management institutions have not been designed according to local dynamics or needs. The philosophies and design of management institutions have altogether been external to Tlalmanalco; change has been imposed from above. National management objectives have prevailed over local needs and concerns, as the role of locals has been limited to their implementation.
2. Forest management institutions have not been responsive to the dynamics of local ecosystems either. Management institutions (elite entrepreneurship at the turn of the twentieth century, communalism after the revolution, scientific forest management after World War II, and participation since the 1990s) have been decided according to the national political/social agenda; they have not been designed according to local ecosystems dynamics. Institutions in charge of

managing natural resources have largely been designed irrespectively of the ecological evolution of the resources – water and timber. In addition, they have not included other resources present in these ecosystems, such as fauna and other forms of vegetal life.

3. Forest management institutions have not been conducive to social and technical learning. The ejido's volatile and powerless situation in the 1990s – characterized by limited organizational capabilities and a limited knowledge of forest management – exemplifies the overall local powerlessness regarding forest management. Also, technical learning has been limited to the expert knowledge of forestry engineers. In addition, the almost exclusive focus on timber and water has discouraged the development of other uses as well as value-creation from the processing of these resources.
4. Forest management institutions have produced uneven situations among stakeholders, and the formation of extremely different thought worlds. These institutions have not led to local cohesion; they have divided locals. After three institutional cycles, groups with extremely remote thought worlds coexist in the same domain, as exemplified by the extreme contrast between the powerless and discouraged world of farmers, and the technical expertise-based world of the forestry engineers (see Chapter 4). This extreme disparity of thought worlds – which contrasts with the geographic proximity between both groups and the “common” history – makes the construction of new connections necessary for future forest management difficult.

The fifth and sixth traits of the history concern the pace and form of change between institutional templates:

5. Forest management institutions have evolved abruptly: radical, top-down change has prevailed over incremental, bottom-up change. Institutional change has been

brought about respectively by ‘sweeping’, ‘spectacular’ and external events: by a nation-wide revolution (1910-1920), the implementation of scientific forest management in the 1940s, and more recently by the economic collapse of the San Rafael Company in the 1990s. Change has not resulted from the evolution of local needs, nor has it emanated from local decisions. In addition, both the content and the pace of transitions from one institutional template to another have been dictated from above.

6. Each institutional template contained the seeds of its subsequent demise – and was replaced with another institutional template. An institutional template responds to the question: who has the right over whom to do what with the resources? An institutional template, as a tool for collective action on forest resources, reflects preferences for uses of natural resources and for specific groups of users. In the history of the management institutions of Tlalmanalco’s forests, the hacienda system concentrated land and resources in order to intensify their uses. It is this very concentration that led to a socially unsustainable situation. The post-revolutionary communitarist system never took off, and was never sufficiently strong enough to propose an alternative model to scientific industry-based forest management, and thereby to the local domination of the Company, as well as to national development policies that shifted to a strong industrial emphasis after the 1940s. The third era (1940-1991) was controlling and rigid; it was centered on the industrial needs of the Company but did not survive the Company’s demise. Its blind spot was the exclusive dependency on the Company and its narrow focus on the industrial use of timber.

### **6.2.3. Making sense of history**

These institutional traits – non-local and non-ecological design, non-learning, dividing institutions – have eroded the local capabilities for forest management; they have constrained locals to positions of compliance in the various regimes. The pace and form

of change – radical changes resulting from macro-level imbalances – have reinforced the local powerlessness. These modern forest management institutions have overall disabled locals and sustained a situation of powerlessness and discouragement. These traits of the management regimes have contributed over the decades to reproducing a problematic situation of forest management in the country described in the 1950s by Hinojosa Ortiz:

We are in a vicious circle that we have to break. Technicians don't trust authorities and authorities distrust technicians for the mistakes of their studies. However, the authorities have failed in creating the context nor the environment for the technicians to work another way. It means that the system constrains them to a mainly bureaucratic activity, that, once it is done, frightens the authority that created and promoted it. (...). At the same time, farmers are not mature enough to be given an unrestrained responsibility over forest management. (1958, p.110)

### **6.3. Present situation**

In this section, I first describe and analyze the domain of forest management, and then tie in the dynamics of the current domain with past historical patterns.

#### **6.3.1. Crises and institutional reconfiguration in the 1990s**

In the 1990s, forest management in Tlalmanalco is in a triple crisis – of purpose, focus and organizing. First, the crisis of the Mexican development model that prevailed for five decades – exemplified by the bankruptcy of the San Rafael Company in 1991 – led to the end of the *raison d'être*, narrowly centered on industrial needs in timber, of the previous management regime (Haber, 1989). As a consequence, the configuration of relations centered on the industrial needs in timber of the San Rafael, which was managed technically by the *Forestal* and dominated the *ejido*, collapsed with the Company in 1991. The old purpose of the management regime – which consisted of supplying the pulp and paper Company – has gone, while a new purpose has not emerged yet. The second crisis concerns the focus that scientific/technical forest management provided to the management institution. Scientific forest management, relying on forestry techniques and focused on a single resource objective for a single user: timber for pulp for the Company, alienated other users and excluded other uses. There is now a potential for other uses that can create more value based on the resources. However, the volatile

organizational dynamics of the *ejido* constrain the collective ability to seize these opportunities and to build the new interorganizational connections necessary for addressing local problems. These problematic organizational dynamics represent the third crisis. In all, this crisis within the social world affects the collective capacity to address ecological threats to the region's increasingly strategic natural resources.

### **Towards an institutional reconfiguration**

Forest management in the 1990s is going through a transformation, as the boundaries between Municipal Affairs and forest management are slowly being removed. "*Forest management*" in Tlalmanalco in the 1990s is a domain composed of two loosely joined sub-domains. These two sub-domains are "*forestry management*" – forest management as timber extraction and as an economic activity and "*municipal affairs*" – forest management as a stake for local ecological balance and economy.

Each of the domains was traditionally managed separately with a specific process. The *forestry expertise-based* domain, established with the institutional cycle of scientific forest management, involved formulation by forestry engineers and implementation by farmers. Long external to the sub-domain of forest management, the domain of "municipal affairs" was dominated by a *political bargaining* process; it involved claim-making by municipal interest groups and allocation of resources by the municipal government.

The use of these processes in these separate domains; forestry expertise-based in forestry management, over a century (1877-1991); political bargaining in municipal affairs over a long period of time (more than 70 years), has led to the atomization of the issues and of the stakeholders. The *forestry-expertise-based* process in the "forestry management" domain has led to the organizational volatility of the *ejido*. The *political bargaining* process in "municipal affairs" has led to the division of issues into separate claims and of the population into different interest groups. All together, these processes have atomized groups and issues, and they limit capacity for addressing the current problems of forest management. These dimensions are summarized in Table 6.3.

**Table 6.3: Two separate problem domains with dominant processes (1877-1991)**

| <b>Problem domain</b>  | <b>Forestry</b>   | <b>Municipal affairs</b>   |
|--|---|--|
| Who are the members  | Forestal; Ejidos  | Municipal government; citizens into interest groups.   |
| Dominant process   | Expertise-based formulation/implementation  | Political bargaining: claim-making/resource allocation   |
| Source of centrality   | Technical expertise-legal status  | “Broker” in resource distribution.   |
| Organizational strategies used to sustain the dominant process | Divide other participants in the domain;<br>Divide issues: limit insertion in labour process;<br>Maintain dyadic relations with different groups. | Divide other participants in the domain;<br>Divide issues and restrict the scope of issues;<br>Maintain dyadic relations with different and separate interest groups |
| Long-term effects of the central process (1990).               | Ejidos: (1) no technical learning;<br>(2) organizational volatility.  | Citizens: (1) lack of understanding of the overall situation of the municipality; (2) powerlessness.   |

### **6.3.2. Institutional change from above: decentralization in 1983 and 1996**

Decentralization – as a form of institutional change – gives incentives to local organizations for (1) establishing new forms of connections with other organizations in the domain; (2) redefining their roles in the domain; (3) establishing connections with organizations in other domains; and (4) providing material, expertise and legitimacy resources from the government.

Decentralization has occurred recently in the two domains. Decentralization in “municipal affairs” occurred with the 1983 law of municipalization of many activities previously held by state and federal level organizations. It has consisted of providing new tools for popular participation; it has invited municipal governments to include the local population in participatory decision-making processes using tools such as the Plan of Municipal Development. It has also affirmed the central role of the municipal government in the domain of municipal affairs.

The 1996 forest law has brought about decentralization in the forestry domain. It has deregulated the commercialization of timber and the contracting of forestry services by introducing market mechanisms to enhance entrepreneurship. Value-creation has become the main challenge for ejido-farmers. It has also given a central role in forest management to the ejidos. This form of top-down institutional change provides local organizations with more resources to address joint local problems of forest management.

### **Patterns of organizing (1996-1999): towards a new institutional template?**

Chapter 5 examined in detail the patterns of organizing in the form of interorganizational collaborations that unfolded in the transitional 1996-1999 period. These collaborations were (1) the logging plan (1997-2006), (2) the Plan of Municipal Development (1997), the reforestation campaigns (1997-1999), and (4) *Sierra Nevada* (since 1997).

### **6.3.3. Findings**

#### **6.3.3.1. Two forms of collaboration**

The detailed examination of these collaborations shows that two forms of collaborations simultaneously occur in the domain: transformational and transactional collaborations. On the one hand, transactional collaborations, or simple collaborations, are bounded in their task and in their membership; they address specific issues. Examples of such collaborations are the logging plan – with a membership limited to land holders and accredited forestry engineers, for the process of timber logging only – and reforestation – limited to the actual task of reforesting. On the other hand, transformational collaborations, or complex collaborations, are open-ended and heterogeneous in their membership and open in their problem definition, their intention to build a vision that aims to orient collective action. Examples of such collaborations include the process of the Plan of Municipal Development as convened by Moctezuma and Burns, before the municipal government altered its trajectory, and the *Sierra Nevada* Project.

**Table 6.4: Transactional and transformational collaborations**

| <b>Collaboration</b>   | <b>Transactional</b>   | <b>Transformational</b>  |
|------------------------|--|--|
| Examples               | Collaboration 1; Logging plan<br>Collaboration 2: Reforestation campaigns.<br>Collaboration 3: Plan of Municipal Development 2 <sup>35</sup> | Collaboration 3: Plan of Municipal Development 1<br>Collaboration 4: Sierra Nevada |
| Exchange               | Material and technical resources.  | Material, technical, perceptual resources and values.                              |
| Coordinating mechanism | Transaction, or exchange of political favors and loyalty.  | Sense-making, regional vision-building.<br>Metaphors: “Community-building”         |
| Membership             | Bounded according to the rules of the field  | Open   |
| Issues/Stakes          | Limited to specific task at hand.  | Open-ended, problem-centered.  |
| Outcomes               | Conducts specific tasks.   | Aims to transform the domain.  |

**Transactional collaboration**

The first form of interorganizational collaboration is transactional. In such a collaboration, an initial script establishes the dimensions of the collaboration. This “script” may have different degrees of formalization, from a formal contract defining the obligations and rights of the parties to an implicit agreement on the definition of the problem and the actions required to address it. The script defines the content, scope and expected outcomes, based on a shared understanding of the “problem” at hand. The objective of such a transactional collaboration is to realize a delimited task that no single organization has sufficient resources to execute. The exchange of intellectual, material or social resources is limited to what is required to reach the specific planned outcomes. These outcomes don’t redefine the problem at hand and leave the participants largely non-transformed. The scope of a transactional collaboration is limited to executing a task within the problem definition initially accepted by the parties.

The reforestation campaign exemplifies a transactional collaboration. Based on perceived interdependencies, the reforestation campaign involved more than one organization and was coordinated by non-market and non-hierarchical mechanism, and participants

<sup>35</sup> I consider here Plan of Municipal Development 1, as the Plan which resulted from the participatory process, and Plan of Municipal Development 2, once it was modified by the municipal government.

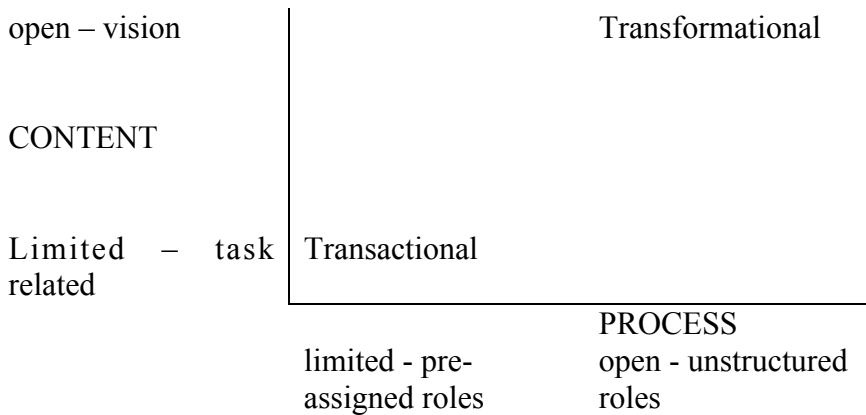
acknowledge that they could not have reached these goals separately. However, this collaboration remained limited to the specific task of reforestation and did not question or transform the problem domain of natural resource management as a whole. The ejidos and the municipality continue their organizational activities separately. The reforestation campaigns represent a common episode in overall separate organizational trajectories.

### **Transformational collaboration**

On the other hand, transformational collaboration involves a participatory process and an open-ended content, and its outcomes result from the definition of the problem constructed by participants ‘on the way’. Motivated by shared concerns and values, people engage in the collaboration and gradually build a common vision of current and possible future situations, and build a course of action in order to attain these goals. Rather than being predefined by specific and measurable dimensions of a task at hand, a transformational collaboration contributes to providing new problem definitions and generates new possibilities for collective action.

*Sierra Nevada* exemplifies such a transformational collaboration. *Sierra Nevada* presents itself as a vehicle for action on large regional economic and social trends that affect the region, its people and its natural resources. Its conveners present it through features related to the process (open, participatory, value-driven, and vision-building) in a problem-domain (geographical area of the Sierra Nevada) rather than by a bounded content and scope (ex.: reforestation in Tlalmanalco). Its objectives are to transform social relations and practices in natural resource management. Figure 6.1 visually represents the two types of interorganizational collaborations in function of their process and content:

**Figure 6.1: Transactional and transformational collaborations**



### 6.3.3.2. Organizations and collaborations

In addition, this detailed examination evidenced that organizations engage in interorganizational collaborations in different ways and for different organizational objectives. On the one hand, the ejido and the municipal government prefer a limited involvement in transactional collaborations, such as the reforestation campaigns and the logging plan. What are exchanged in these collaborations are primarily material resources in order to conduct tasks limited in time and scope, and coordinated by a simple mechanism. On the other hand, *CSI* and *Casa UAM Comunidad* enhance transactional collaborations such as *Sierra Nevada* with heterogeneous participation, open-ended content, and are coordinated by visionary leadership. The clash that occurred in the Plan of Municipal Development between the municipal government – as a tenet of transactional collaboration – and *CSI* and *Casa UAM Comunidad* on the other hand – as champions of a transformational collaboration – confirms that these two collaboration forms co-exist in the same domain, but may not converge.

### **Transactional collaboration as strategy of organizational resistance to institutional change**

However, these two organizations which hold central positions in their domains – the municipal government and the ejido respectively – resist the decentralization that would challenge their central position in the domain; their strategy of resistance is to engage in transactional collaborations with other organizations in order to maintain their position and the status quo.

In “municipal affairs”, the municipal government engages in a transactional collaboration to sustain the political bargaining process from which the municipal government maintains its central position as a claim gatherer and as a resource allocator with other local stakeholders. The municipal government was reluctant to engage in a participatory process in the Plan of Municipal Development and has reformulated the Plan of Municipal Development as a political bargaining process; it has maintained control over the Reforestation Campaigns by maintaining a position of claim gatherer and resource allocator. In the “forestry management” domain, forestry engineers engage with ejido-farmers in a logging plan. This transactional collaboration maintains the expertise-based process in which engineers formulate and farmers implement the plan, and restricts participation in forest management to ejidatarios and forestry engineers. This collaboration restricts the access to other stakeholders, such as local ecologists. In summary, organizations dominant in a domain use transactional collaborations to maintain their position. Table 6.5 summarizes these dimensions.

**Table 6.5: Organizational strategies of resistance to institutional change**

| Problem domain   | Forestry Management  | Municipal affairs  |
|--|--|--|
| Institutional innovation   | Forestry law (1996) liberalizes commercialization of timber.                     | Law of “Municipalization” of the State of Mexico;<br>Plan of Municipal development   |
| What is at stake for low power holders?  | Value-creation from forest resources   | More popular participation in municipal planning processes.  |
| What capabilities are required for low power holders?                                  | Entrepreneurship   | Participation  |
| Tactics used by local organizations holding power to resist institutional innovations. | Transactional collaboration: expertise-based formulation/implementation process. | Block a transformational collaboration with Plan of Municipal Development;<br>Promote transactional collaboration: reformulate claims making/resource allocation process in reforestation campaigns. |

### **Transformational collaboration as a strategy of change**

Organizations unsatisfied with the current status quo aim to transform the existing problem domains. Their strategy of *transformational* collaboration represents an attempt to transform existing domains and merge them, in order to reframe cross-boundary problems, include new stakeholder groups, and enhance complex problem resolution. *Sierra Nevada* is an initiative aimed to reframe issues around a commonly built vision for the future of the region. It has involved various organizations and individuals concerned about the environmental deterioration around various types of initiatives, all harmonized by common values and charismatic leadership. *Sierra Nevada* is an attempt to merge the two domains of forestry management and municipal affairs, an attempt that is resisted by the two organizations that respectively dominate the two domains.

My two research concerns for institutional change dealt with the change across institutional templates and cross-level change. In section 6.4, I present the central theoretical contributions for these two questions.

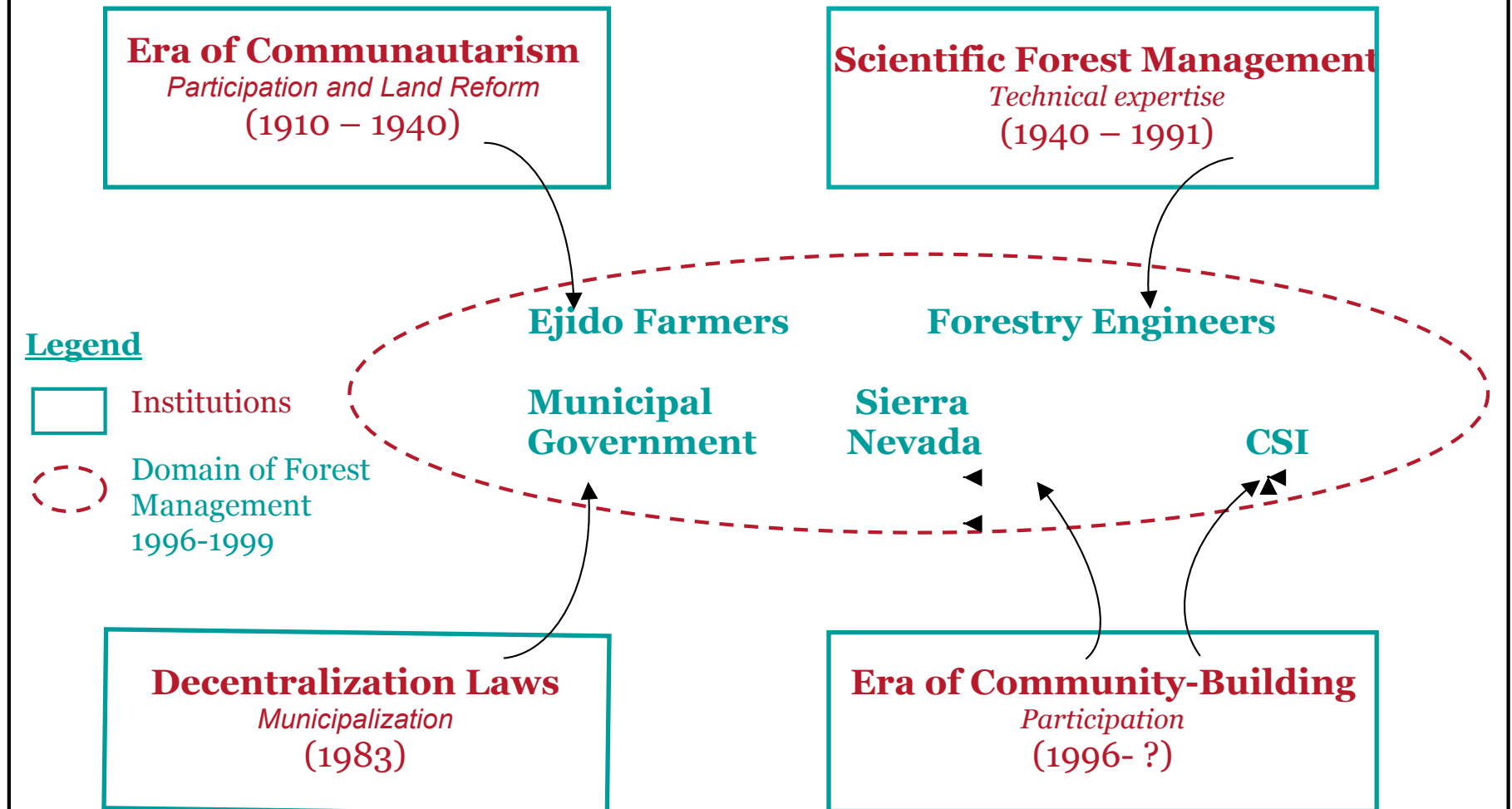
## **6.4. Theoretical implications for institutional change**

At a more theoretical level, this study proposes a novel view for the understanding of institutional change. The main finding of this study is that institutional templates are not merely ‘replaced’, *stricto sensu*, as the literature often suggests. Rather, previous institutional templates sediment in the texture of a domain. I particularly consider here two aspects of the domain: organizational claims for legitimacy and interorganizational conversations in the domain.

### **6.4.1. Sedimentation of institutional templates: organizations claiming legitimacy**

Organizations legitimize their status as stakeholders in the domain drawing from the institutional template that established them as organizations of forest management. Figure 6.2 illustrates the links between past institutional templates and current organizations in the domain. The ejido claims legitimacy as a stakeholder in the domain from the institutional template of communitarism that promoted participation; forestry engineers claim legitimacy as scientific and technical experts in forestry which was promoted by the scientific forest management institutional template after 1940; Sierra Nevada and CSI, the NGOs, construct their legitimacy as participants from civil society build on the recent laws that open the domain; last, the municipal government uses the 1983 municipalization law to claim its legitimacy in forest management. As such, the interorganizational domain of forest management in 1996-1999 reflects these various layers of previous institutional templates.

**Figure 6.2. Linking Past Institutions and the Current Domain of Forest Management  
(1996 – 1999)**



#### 6.4.2. Sedimentation of institutional templates into interorganizational conversations

The patterns of organizing – interorganizational collaborations – also reflect the sedimentation of past institutional templates. Table 6.6 links current patterns of organizing with past institutions.

**Table 6.6: Linking patterns of organizing (1996-1999) with institutions (1877-1996)**

| <b>Pattern of organizing (1996-1999)</b>     | <b>Logging Plan (1997-2006)</b>          | <b>Plan of Municipal Development (1997)</b>                                 | <b>Reforestation Campaign (1997-1999)</b>   | <b>Sierra Nevada (since 1997)</b>                 |
|--|--|---|---|---|
| Coordinating mechanism                       | Technical formulation/ implementation    | Clash between a political bargaining process and a vision-building exercise | Political resource allocation               | Vision-building exercise.                         |
| Institutional template tied with the pattern | Scientific forest management (1940-1991) | Political bargaining (Municipal government)                                 | Political bargaining (Municipal government) | Participation and community-building (since 1991) |
| <i>Form of collaboration</i>                 | <i>Transactional</i>                     | <i>Transactional vs. transformational</i>                                   | <i>Transactional</i>                        | <i>Transformational</i>                           |

In this period of change between two institutional templates, some patterns of organizing have the characteristics of the processes associated with past templates, whereas others reflect the emerging new institutions. The observation of the coordinating mechanisms particularly evidenced the links between past institutions and present patterns of organizing. In the case of forest management, reforestation and the logging plan are in continuity with former management regimes and the process that prevailed in these regimes. Reforestation is coordinated as a process of political bargaining centered on claim making and resource allocation; the logging plan is coordinated as a technical engineers formulation/farmers' implementation, in continuity with the 1947-1991 regime.

On the other hand, *Sierra Nevada* proposes to change process/coordination and content. Process and content are linked: the process – open participation coordinated by visionary leadership around the objective of regional community-building – generates novel

content: the creation of new resources uses of new social connections. The clash between a political bargaining process promoted by the municipal government, and a vision-building exercise advocated by conveners of the civil society, in the Plan of Municipal Development in 1997, revealed a deeper division between two institutional templates: past “municipal affairs” and the emerging “open participation”.

In summary, I propose that institutional change situations are characterized by the presence of various competing and co-existing patterns of organizing, among which some are more likely to be sustained and some not. Some are already coherent with the new incoming institutional template. In addition, I propose that an institutional template does not replace another one in a mechanical process. Rather, patterns of organizing contribute to make the transition between templates possible. Researchers could examine the micro-dynamics and the role of these patterns of organizing.

## **6.5. Implications for natural resource management**

This detailed study of the “implementation” of a community-based management scheme also offers interesting insights for scholars and practitioners interested in the role of community and participation in local natural resource management. As this body of research extends over various academic disciplines, uses various theoretical approaches and work on different levels of analysis, I focus on the specific issue of the role of community in natural resource management. My findings rejoin the recent critique of the role of community in natural resource management proposed by Agrawal and Gibson (1999); this study also highlights the examination of organizational and interorganizational dynamics as a fruitful perspective for a better understanding of the dynamics of communities and of community-building in natural resource management.

### **6.5.1. The disillusionment with centralized management schemes**

The last two decades have seen an increasing questioning of the role of centralized management regimes in natural resource management (Ostrom, 1990; Agrawal, 1998; Scott & Baht, 2001). Empirical studies have provided evidence that centralized management schemes often fail to manage resources in a sustainable way since they are not adaptive (Westley & Vredenburg, 1995; Holling, 1995), and also because they deprive locals of motivations for managing resources in a sustainable way (Ponting, 1991; Ostrom, 1990). In addition, there has been a loss of faith in the ability of the state and of the market for managing resources in a sustainable way (Agrawal et al., 1999), especially in management regimes that Scott (1996) describes as ‘highly modernist utopias’, such as top-down coordinated, chemicals-based ‘green’ revolutions involving large scale and centralized schemes. In the case of Mexico, Simonian (1995, p.112) described the effects of the state’s intervention on natural resource management and conservation in the twentieth century as:

Through its development programs, the Mexican government was a principal agent in the country’s environmental decline. Partly because of apathy and partly because of the tremendous obstacles to the enforcement of conservation laws, government officials also failed to check the environmental damage done by private citizens. As participants and as bystanders, Mexican politicians oversaw the destruction of their nation’s natural resources.

### **6.5.2. Enchantment with community in natural resource management**

As a consequence, researchers have situated institutional change toward the realm of small scale management – in the various forms of ‘decentralization’ and ‘local devolution’ (FAO, 1999), ‘community-based management’ (Agrawal et al., 1999), ‘social mechanisms for enhancing ecological resilience’ (Berkes & Folke, 1998) – as a promising solution for complex resource problems. It has been argued that local regimes of resource management constructed as a result of decentralization would lead to improved resource management.

Following this disillusionment with large scale management schemes, authors became ‘enchanted’ (Agrawal & Gibson, 1999; Ostrom, 1990) with community as a potential locus of collective action for sustainable natural resource management. The conventional view of community these ‘enchanted’ authors have elaborated especially emphasized

three dimensions of community: (1) community as a small spatial unit; (2) community as homogeneous social structure and; (3) community as shared common interests and shared norms.

The first dimension of this conventional view of community emphasizes *smallness* – few people as members – and *spatial unity* – geographical affiliation as proxies for community. They argued that the small size and proximity brought two advantages for sustainable resource management (Agrawal & Gibson, 1999, p.634). First, members of small groups sharing the same geographical space are more likely to interact with one other more often, lowering the costs of making collective decisions. Second, because of continuing interactions in a given space over time, communities may also be able to develop specific ways of managing the local resources, which might lead to the formation of local knowledge on resource management (Berkes & Folke, 1998). These two characteristics – cost effective decision-making and the formation of local ecological knowledge – may lead to improved resource management.

The second dimension of community emphasizes community as a *homogeneous social structure*. As Agrawal and Gibson (1999, p.634) put it:

Observers have assumed communities to be groups of similarly endowed (in terms of assets and incomes), relatively homogeneous households who possess common characteristics in relation to ethnicity, religion, caste, or language.

This homogeneous social structure contributes to making decisions and enforcement for managing natural resources in a sustainable way easier. The third dimension for community as a useful institution in resource management is that it represents common interests and shared norms. As groups of humans linked with a common history, place and fate, communities are composed of individuals who share common interests and norms, and who share common identification, growing out of shared characteristics (Selznick, 1992: 1996: Agrawal & Gibson, 1999).

Agrawal et al (1999) propose a critique of these three frequently mentioned arguments for community-based resource management. Regarding smallness and spatial unity, they argue that more than one community may be allocated a given resource – such as a forest.

It may not be easy to allocate a given resource to a given community, as various neighbouring groups may be competing for the same resources. Regarding social homogeneity, they contend that few studies actually operationalize social homogeneity, and fewer actually examine intra-community conflict. Coomes' studies of resource use by communities in the Peruvian Amazonian forests highlights how different households use different strategies of resource use according to their position in the community and according to their level of income and wealth. Some of these households may use resources in a sustainable way, whereas others may not. In any case, describing local users' behaviour vis-à-vis the resource as 'community' use may be misleading and may hide important intra-community differences. Regarding the last argument of shared norms, they pinpoint that, although communities do represent shared norms – including norms about resource management, there may be little correlation between the presence of these norms and sustainable resource management. They mention that a pervasive norm regarding land use in Latin America is that land is only useful when cleared for agriculture. Norms matter, but their relation with sustainable resource management remains elusive.

Agrawal and Gibson then invite researchers to go beyond the only emphasis on the desirable aspects of community for sustainable resource management, and to examine three critical aspects of communities, namely: (1) the interactions between multiple interests and actors; (2) local-level processes; and (3) the institutional arrangements – 'sets of formal and informal rules that shape interactions of humans with others and between humans and nature, which constrain some activities and facilitate others' (1999, p.637).

### **6.5.3. Learning from Tlalmanalco for community management**

This study proposes two contributions to the discussion of the role of community in natural resource management. First, at the empirical level, the study confirms the view of community proposed by Agrawal and Gibson. The community of Tlalmanalco is relatively small and geographically bounded; however, it also holds various and remote thought worlds that represent and use resources in different ways, and have differentiated access to the resources. Also, this study evidenced that there are various local processes simultaneously occurring in the same domain/ community. In addition, this study also highlights the important role of the connections between local and macro (national) levels in enhancing or constraining the potential role of community in natural resource management. Communities are not insulated from their broader institutional context and future researchers should consider them as embedded in a context of macro-micro connections.

The second contribution of this study is to propose a novel research avenue for researchers of community-based natural resource management. This study examined the local community, centered on the issues of forest management as organizational and interorganizational conversations. The frameworks for analyzing institutions and interorganizational collaborations developed and used here will help researchers examine these important issues with a novel perspective.

## **Appendix A: Important secondary data sources**

### **MUNICIPALITY (*AYUNTAMIENTO*)**

Ayuntamiento Constitucional de Tlalmanalco de Velasquez (1999), Tercer informe de gobierno municipal, (1997-2000)  
Reyes, Melo y amigos (1999), El pueblo en general... Nov.12-1999  
Anonymous (1999), Se advierte al pueblo...  
Anonymous (1999), Pesima administracion, sueldos milionarios Amequemeque, December.  
Anonymous (1999), Al pueblo de Tlalmanalco  
Avelar de Leon, J (1999), Laberinto, in Amequemeque  
Vazquez, J. (2000), Letter to the Mayor of Tlalmanalco, Jan. 4.  
Moctezuma, Pedro, Notes, December 1999  
Ayuntamiento (1997), Plan de Desarrollo Municipal 1997-2000  
Ayuntamiento (1998), Corredor Turistico Tlalmanalco, Informacion turistica  
Ayuntamiento (1998), Un viaje por le historia de Tlalmanalco, Informacion turistica  
Ayuntamiento (1998), Caminos pintorescos, Informacion turistica  
Ayuntamiento (1999), Invitacion a la clausura de la temporada de reforestacion  
Ayuntamiento (1999), Invitacion a la conmemoracion del dia de la tierra  
Ayuntamiento (1999), Al pueblo en general, El H. Ayuntamiento informa.... Nov. 1999  
Lazaro, J. (1998), Intentan mata al edile de Tlalmanalco, La Prensa

### **FARMER'S COOPERATIVES -- *EJIDOS***

PRODEFOR (1999), Manejo de Aprovechamiento de recursos forestales, Ejido de Tlalmanalco, April.  
Alvarado, René Ramòn (1999), Ocupan campesinos oficinas ejidalees en Tlalamanalco, La Jornada, Sept. 20, p. 54.  
Amaro Sigüenza, R. (1989), Breves apuntes de un ejidatario, San Juan Atzacualoya, 14-12-89  
Barreto Flores, Salvador (1998), El movimmiento campesino en la región Itztlaccihuatl-Popocatepetl y la explotacion forestal por la fabrica de papel San Rafael (1986- 1992), Tesina, Facultad de Ciencias Politicas y Sociales, UNAM, México, Mex.  
Moctezuma, P. (1996), Entrevista con el Sr. Zenen Nolasco Hernandez, 02-02-96  
Gobierno del Estado de Mexico (1998), Esquema organizativo "Empresa ejidal de Tlalmanalco", Mex.  
Friedrich, Paul (1981), Rebeliòn agraria en una aldea mexicana, CEHA, FCE, Mexico.  
Klooster, Daniel (1997), Como mo conservar el bosque: la marginalizacion del campesino en la historia forestal mexicana, in *Cuadernos Agrarios*, México DF, Federacion Editorial Mexicana , No 14, Year 6, Sept. pp. 144-156.

### **HISTORY OF TLALMANALCO**

Arango Miranda, Azucena (1997), Industria y espacio en San Rafael, México: Formacion, desarrollo y desenclave, Tesis de Licenciatura en Gerografía, UNAM, Mexico, DF.

Club deportivo internacional (1938), A la fabrica de papel de San Rafael, 16 p.

Anaya Perez, Marco Antonio (1997), Rebelion y revoolucion en Chalco Amecameca (1821-1921) Vol. 2, Instituto Nacional de Estudios Historicos de la Revolucion Mexicana, U.A. Chapingo

Espejel Lopez, Laura (1997), San Rafael: un pueblo y una empresa. Imagenes de su historia en el proceso de trabajo, 1890-1940, Revista Historia, Mexico

Crisoba (1978?), San Rafael: 88 anhos de historia

Garcia Luna, Margarita (1998), Los origenes de la industria en el Estado de Méxcio (1830-1930), Gobierno del Estado de México, Toluca, Mex,

Guajardo Guillermo (1999), Tierra y acero, maquinas y obreros bajo los zapatistas, unpublished

Hidalgo Perez, Norberto (1984), Cronica de Tlalamanalco, Tlamanalco, Mex.

Noyola Rocha, Jaime (1999), Monografía municipal de Tlalamanalco, Estado de Mexico, Instituto Mexiquense de Cultura, Toluca

Huerta Gonzalez, Rodolfo (1993), Transformacion del paisaje, recursos naturales e industrializacion, el caso de la fabrica de San Rafael, Estado de México, 1890-1934, in Tierra, Agua y bosques: Historia y Medio Ambiente en México Central, Alejandro Tortolero Villasenor, coord. , coleccion Ecologia, Coed. Centro Francès de Estudios Mexicanos y Centroamericanos y Centro de Investigaciones Dr. José Maria Luis Mora, Potrillo Ed.

Informe de la escuela secundaria obrera por cooperacion (1941), No 2, 4 pp. , San Rafael, México.

Sindicato Unico de trabajadores de la industria papelera de la R.M. (1936), Pliego de peticiones a la compania de las fabricas de papel de San Rafael y anexas, S.A., Jan. 22, Mexico, D.F.

## **REGIONAL ECOLOGICAL SITUATION**

Casa UAM (1998), Diagnostico regional del agua, de los bosques y de los suelos de la region,

Casa UAM (1998) Bosque Escuela, Cuadernos de trabajo de la Sierra Nevada, la comision de bosques, Tlalamanalco, Mex .

Casa UAM (1998) Consejo Social Itzacihuatl, Cudernos de trabajo de la Sierra Nevada, la comision de bosques, Tlalamanalco, Mex.

Casa UAM (1998), Grupo Ixchel de los volcanes, Cuadernos de trabajo de la Sierra Nevada, la comision de bosques, Tlalamanalco, Mex.

## **ECOLOGICAL SITUATION OF THE FORESTS**

Casa UAM (1998), Diagnostico regional de los bosques y economico de la region,

Hernandez, Agustin (1984), Itzacihuatl,

Roldan Aragon, I. E. et al. (1997), Diagnostico de potencial ecoturistico en el Municipio de Tlalmanalco, Estado de Mexico, Division de Ciencias Biologicas y Salud, UAM, Xochimilco, México, Mex.

Chàvez Cortes, J.M. and Nuri Trigo Boix (coord.) (1996), Programa de Manejo para el Parque Nacional Itztlaccihuatl- Popocatépetl, coleccion Ecologia y Planeacion, UAM, Xochimilco, México, Mex.

Quiroz Ramirez, Newton Hugo (1996), Morfopedologia y erosion en los grandes estratovolcanes de la Sierra Nevada, Revista de Geografia, No. 7, Vol. 6, Agosto, pp. 1-34, UNAM, México, DF

Lazaro, Juan (1999), Falta agua en poblados cercanos a volcanes, p. 4 , El Universal, Mexico, D. F.

## **PULP AND PAPER INDUSTRY**

Lenz, Hans (1991), Historia del papel en México y cosas relacionadas, Porrúa Ed., Mexico D.F.

Celorio, Indalecio (1998), Historia del carton corrugado en Mexico, Personal Edition, Mexico, DF

Cámara Nacional de las Industrias de la Celulosa y Papel (1999), Memoria Estadística, Mexico

Cámara Nacional de las Industrias de la Celulosa y Papel (1970), Memoria Estadística, México

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Ignacio, Eloy et al. (1997), Plantaciones forestales en México: una alternativa de manejo sustentable de los recursos naturales, in Cuadernos Agrarios, México DF, Federacion Editorial Mexicana, México, D.F. , No 14, Year 6, Sept. pp. 34- 40

## **HISTORY OF THE MANAGEMENT OF THE FORESTS**

Unidad Industrial de Explotación Forestal de San Rafael, (1976), Aspectos relevantes de la Administracion tecnica forestal en la Unidad Forestal San Rafael, Oct. No. 2

Unidad Industrial de Explotación Forestal de San Rafael (1986), Plan de ordenacion forestal

Unidad Industrial de Explotación Forestal de San Rafael (1976 ?), El inventario permanente forestal continuo en la unidad forestal, primeria memoria

Unidad Industrial de Explotación Forestal de San Rafael (1987), Cuarenta años de administración Forestal en la unidad industrial de explotación forestal San Rafael (1947-1987)

Unidad Industrial de Explotación Forestal de San Rafael (1985), Memoria de preparación del plan de ordenación forestal.

Reyna Cortez, José Octavio (1970), Criterio General a seguir en la elaboración de un inventario forestal, mediante el auxilio de la fotoagrimetría, aplicación al caso de la Unidad Industrial de Explotación Forestal de San Rafael, Tesis Profesional, Instituto Politécnico Nacional, México.

Carreno Manjarrez, Juan Manuel (1973), Evaluación de una plantación de coníferas de 20 años de edad, Escuela Nacional de Agricultura, Chapingo

Chambille, Karel (1983), Atenquique, los bosques del Sur de Jalisco, Instituto de Investigaciones Económicas, UNAM

## **ENVIRONMENTAL SITUATION - MEXICO**

Alvarez Icaza L. , Pedro, Saul Monreal and Juan Luis Viveros Salinas (1997), La construcción del modelo mecánico de plantaciones forestales. Un acercamiento ambiental, in Cuadernos Agrarios, México DF, Federación Editorial Mexicana, México, D.F. , No 14, Year 6, Sept. pp. 25-33.

Merino, Leticia (1997), Los bosques en México, una perspectiva general, in Cuadernos Agrarios, México DF, Federación Editorial Mexicana, México, D.F. , No 14, Year 6, Sept. pp. 157-162

## **Appendix B: Example of table interview analysis**

Mr. F.I. is the delegate for reforestation programs of Probosque, Federal institution in charge of forest management, for the Eastern part of the State of Mexico. I am interested here in understanding his views on local interorganizational dynamics. This interview was done in January 2000 in Texcoco.

| Category | Code              | Subcode  | Quote   | Where |
|----------|-------------------|--|---|-------|
|          | Fed Institutions  | lack of resources  | 65,000 - 4 persons  | 12    |
|          | Forest Management | Obstacles - tradition of corruption                            | hay algunos vicios que se viene arrastrando de muchos años en éstos vicios yo pudiera señalar algunas formas de corrupción, de convivencia entre los responsables del aprovechamiento   | 22-25 |
|          | FM                | Obstacles - collusion Forestal- ej leaders                     | se puede decir que tenía comprados a las autoridades oséa yo voy a trabajar, voy hacer esto, voy hacer el otro y de parte de todos los beneficios algo le daban a las autoridades, entonces las autoridades asumían un papel  | 26    |
|          | FM                | PAST REGIME - LOW BUT SECURE RENT                              | Autoridades Ejidales y comunales, autoridades ejidales y comunales asumían un papel de si veo no veo, no oigo pero yo tenía.... yo como autoridad ejidal una tenía asegurada cierta.....Cierto ingreso por esto,  | 29-32 |
|          | FM                | Obstacles - past collusion external - heads of ej continues    | esto traducido a un régimen que ahorita libre, mucho de los compradores de las industrias de aserraderos hacen casi la misma práctica, con el fin de asegurar su materia prima para su industria <b>por ésas circunstancias el ejido no llega a contratar con la mejor opción por que ya hay ciertos arreglos</b>   | 35    |
|          |                   | Obstacles- Ejido Internal decision-making                      | <b>muchas veces las decisiones que se toman en los senos de las asambleas este...no siempre van en beneficio de toda la comunidad o de un beneficio mayor, beneficio siempre va a haber, entonces ya hay líderes que se arregla de alguna forma la asamblea y entonces se toman las decisiones así es.</b>  | 40    |
|          | FM                | Ejido- enclave   | De éste tamaño nada más sea para beneficiar a los 196, 196 ejidatarios, entonces parte de lo que nosotros decimos bueno es que el beneficio no nada más es el reparto directo que se llama hay beneficios alrededor de  | 51    |
|          |                   | Ejido - Short term individual profit vs. long term investments | Ellos quieren el dinero ya, Dinero ya, ya no lo que invertir, hacer inversiones para el futuro del ejido No, no, parte a lo mejor si se va y ahí vienen a lo mejor muchas tensiones al interior del ejido no pero si no yo te podría asegurar si no repartes tu dinero en el ejido, en la comunidad una vez hecho un aprovechamiento, no duras como autoridad simplemente te cambias por que no estás...                          | 70    |
|          |                   | ET- BONIFACIO - TRUST ABUSE                                    | Eso es un gran problema, regresando a la historia del propio ejido de Tlalmanalco oséa ahí se supone que en una de las asambleas anteriores, la anterior autoridad había logrado un acuerdo de asamblea donde les decía, donde lo facultaban a él para hacer pues lo que fuera necesario en beneficio del ejido y por eso se metió al rollo del aserradero, compró alguna maquinaria, pero le costó el puesto al final de cuentas | 80    |
|          |                   | EJIDOS: INDIVIDUAL SHORT TERM BENEFITS..                       | la gente los ejidatarios, los comunitarios buscan un beneficio inmediato, a lo mejor si nos esperáramos a la mejor cinco años en no recibir beneficios este... tendríamos la posibilidad de crecer empresarialmente y los beneficios serían pues muchos, mayores y la gente no lo ve así.   | 91    |

|  |  |  |   |     |
|--|--|--|---|-----|
|  |  | EJIDOS - CLOSED DOORS  | Pedimos, pedimos ir a las asambleas, no siempre nos dejan ir, por que en algunos casos no quieren que estemos ahí por lo que sea y no podemos obligarlos, en descarga de eso lo que buscamos es convencer a las autoridades ejidales, en algunos casos hay ciertos líderes, ciertas gentes que conviene que le platiquemos, que los convencemos este.   | 130 |
|  |  | EJIDOS - LEADERS CENTRALIZE ALL DECISIONS                      | ntonces las autoridades o el presidente prefiere quedarse sobrecargado de trabajo y no hacer al 100% lo que se puede hacer - Pero es mi decisión y yo ordeno si hay esto o si no hay esto otro y esto te lo vas a encontrar en todos lo ejidos por que...entonces lo que nosotros y nunca lo pudimos llegar a fructificar en una asamblea era proponerlo a la asamblea oséa que la asamblea no  | 149 |
|  |  | SSEMBLIES - DYNAMICS - BENEFIT DISRIBUTION                     | Es muy relativo, normalmente en una asamblea vienen seis o siete cosas que hay que tocar y a la mejor salen dos muy bien y salen dos no también y sales dos malas oséa las únicas que salen bien invariablemente son cuando reparten dinero, ésas salen muy bien, todo mundo contento y todo mundo satisfecho, ésas son, esas invariablemente salen bien, y además son las que normalmente tienen un mayor número de asistentes, en las otras normalmente por el régimen agrario aquí en México, muchas veces se tienen que ir a segunda convocatoria                                       | 164 |
|  |  | EJIDOS - LOW INTEREST FOR ISSUES AND DECISION                  | Y entonces ellos se van inmediatamente después del reparto? Si, si incluso pones en el orden del día, pudieras poner cuatro cosas y al último pones el reparto para que te aguanten los otros tres, para poder tratar los otros tres y te lo cambian, dicen no, no, no ya repártenos ya, ya   | 169 |
|  |  | WORKING WITH EJIDOS - OVERCOMING MISTRUST                      | comentábamos en Tlalmanalco ahí habíamos.....se buscaba la posibilidad de meter algo de industria del aserradero, ampliar incluso cuestión de ecoturismo, viticultura, todos esos que podíamos ir metiendo en casillas dentro de ése organigrama pero no, no, no cuajó y digo esta nueva autoridad hay que ir....oséa no puedes llegar tampoco de rápido oiga traigo esto, tienes que ir de haciendo cuate primero de que te conozcan, que vean que vas con una intención....De desarrollo desinteresada desde el punto de vista personal y vas tratando, eso te lleva un año muchas veces, | 179 |
|  |  | WORKING WITH EJIDOS - OVERCOMING INSTABILITY AND DISCONTINUITY | si consideramos que la autoridad ejidal dura tres, pues el bueno es el segundo, que era el que estábamos mas o menos empezando a trabajar con Tlalmanalco con la anterior autoridad pues terminó el ... su segundo años y ya se terminó practica....un poco antes incluso de concluir su segundo años de gestión entonces a volver a empezar  | 185 |
|  |  | LUCIANO AND REFORESTATION                                      | Es casi, casi extraordinario oséa muchos, bueno no extraordinario es bueno, muchos se quedan lo normal donde bueno pues si se involucran pero no realmente Luciano es de los mas involucrados que sin conocer la materia sin saber le tocó y al final de cuantas al cabo de tres años ya que lleva mas o menos le entiende ya sabe, ya se mete, ya discute, ya analiza  | 211 |
|  |  | MUNICIPALITIES - LOW PROFILE OF DOE                            | E primer lugar la decisión del presidente municipal como bien lo decía Luciano muchas veces la comisión de ecología la ven como un castigo  | 220 |

|  |  |  |   |     |
|--|--|--|---|-----|
|  |  | MUNIC - NO BUDGETS                           | Pues por....muchas veces en otro tipo de regidurías hay dinero, hay dinero en permisos vaya hasta en el de panteones, creo que por dar un pedazo de panteón llevas ahí un... no sé osé la gente desconoce, al final de cuentas es desconocimiento es una actividad muy bonita, pero mucha gente se va con otras cosas más tangibles, mas inmediatas,  | 224 |
|  |  | ROLE OF INTERMUNICIPAL COORDINATION          | entonces todos lo 26 municipios tienen su programita o programota de reforestación y es ahí donde logramos coordinarnos con ellos en esta actividad y es ahí donde ellos se tienen que pelear valga la expresión con sus presidentes municipales, con sus cabildos para que les asignen recursos al programa de reforestación   | 235 |
|  |  | POLITICAL PARTIES AND REFORESTATION          | Siento que es algo independiente, es algo independiente y es algo que aveces hay que sacudirse e de decirte uqe dentro de estos 26 ayuntamientos que nos toca, con los que nos toca trabajar, 14 son del PRI y 12 son del PAN, del PRD y del partido verde ecologista uno, sin embargo cuando es cuestión de trabajo se olvida, aquí vamos a ver el problema de reforestación o vamos a ver el problema de los incendios o vamos a ver el problema  | 238 |
|  |  | EJIDOS - BENEFICIOS                          | Muy fuera de lugar pero bueno, este... el digo un paréntesis, él hablaba del estado de derecho no, un régimen legal y a la vez se quejaban de que los beneficios económicos del aprovechamiento pues nomás iban a parar a unos cuantos, bueno pues es el estado de derecho a final de cuentas por lo que sea ellos son los que tienen el derecho del usufructo de esos recursos –   | 245 |
|  |  | EXPECTED CIVILD PARTICIPATION                | si son actividades de reforestación, pues ir a agarrar la pala, o hay gente que nos a ayudado incluso algunas pequeñas pláticas en algunas escuelas, gente que tiene la capacidad del conocimiento que es de la sociedad civil, gente que en un momento ve un incendio y agarra la pala ahí ya no importa si eres o no ejidatario, si se está quemando o no se esta quemando tu, tu parte de bosque, vamos y le entramos y algo también en lo que queremos que participe que todavía no funciona vivimos en un país en donde el bosque en muchos casos se ve en una forma muy romántica | 259 |
|  |  | EJIDOS CLOSED DOORS - CONSEQUENCES FOR ALL - | al mismo tiempo ya hay una inquietud que la gente tiene que yo en cierta forma comparto que es bueno allí está gente del ejido que no abre sus puertas , no sabemos como toman las decisiones y son propietarios de los bosques y si los bosques se acaban nos va a afectar a nosotros directamente, la región será menos húmeda, va haber consecuencias múltiples pero al mismo tiempo ellos no se ponen tampoco al mínimo ejercicio de transparencia en sus actividades, los ejidatarios tampoco explican lo que están haciendo entonces como...                                      | 287 |
|  |  | EJIDOS - DECISION MAKING - CLOSED DOORS      | Nosotros.... yo en lo personal se lo he comentado, lo he comentado muchas veces y eso es uno de los grandes errores que tienen los ejidatarios y los comuneros ese sistema cerrado que yo te mencionaba hace rato osé de decisiones   | 295 |

## Appendix C: Table summarizing central themes from the four collaborations

### Collaboration/ themes

| Themes | Collaboration 1: Logging plan: LP  | Col 2: Plan of Municipal Development (PMD)  | Col 3: Reforestation campaign (REF)  | Col 4: Program Sierra Nevada for the management of Natural resources. (SN)  |
|--------|--|---|--|---|
| 1.     | The vision for sustainability: “social appropriation of the forests by farmers” - and organizational ejido obstacles to achieve it - or not.   | Strategies and tactics used by the municipality to discourage citizen participation and “deteriorating social capital”.                 | Individual strategies by Luciano: why reforesting? Individual and political gains  | Existing organizations (MT and Ejidos) that “claim community” don’t solve/worsen local ecological, economic, and cultural problems: “Municipal governments come and go, community’s problems remain”.                 |
| 2.     | Competing perceptions of the Old (SanRafael- Forestal) management regime “ “transcendental” for the engineers; “exploitative” for the farmers leaders; “ a small but secure rent” for non leading farmers. | Tensions and final clash between two processes: traditional political bargaining (MT) and participatory processes (Pedro and Elena SN). | Internal municipal/organizational dynamics and reforestation.  | Reclaiming “Community” with organizations independent from existing ones – but still within legality: motivations, resources and limitations of citizen participation.  |
| 3.     | Powerlessness vis a vis illegal logging  | A Municipal Santa Claus: internally and externally.   | Ref = a low intensity collaboration between MT and Ejido: “each of us stays home”.   | Challenge of keeping volunteers motivated and mobilized: the solitude of a small community group.   |
| 4.     | Engineers: powerful locally, vs. powerless and discouraged vis a vis national institutions and policies.   | Internal municipal dynamics and PMD.  | Ref = a way of framing the content (“this is action” and non threatening for existing institutions), and process (clear decision authorities-implementation citizens) of Natural Resources Management. | Challenge of keeping academics mobilized: academic organizational dynamics and design vs. local - community needs.  |
| 5.     | LP = a low intensity collaboration between farmers and engineers.  |   | Luciano’s “lyrical” (“O beautiful planet/tree, I love the forest”) type of motivation vs. his realpolitik.   | Strategies of Casa UAM to overcome municipal (“scaling up at the regional level”) and academic obstacles (“tapping non academic volunteer experts”, mobilizing external - national and international - institutions). |
| 6.     | The engineers’s view: How the State built and sustained “a Sta Claus-children” relation with farmers.  |   |  | Vision and activities of SN: geographic literacy; vision-building participatory processes; small community-based productive projects.   |
| 7.     | Value-chain and income generation opportunities from forest extraction.  |   |  |   |
| 8.     | PROCESS of logging: “Economic incentives for and organizational dynamics against social appropriation”.  | PROCESS of PMD: “Opening and closing a window of opportunity”   | PROCESS of reforestation campaigns: “from punishment to recognition”.  | PROCESS of Sierra Nevada: 1994-1999.  |

## Appendix D: Chronology of forest management in Tlalmanalco (1886-1999)

|           |   |
|-----------|---|
| 1886-1890 | May 1890: the Ahedo and Co., a pulp and paper company established in San Rafael in 1889, is exempted for 10 years of rights / import tariffs - (derechos) on machines, raw materials, and profits by the State of Mexico governor. It is a common practice at that time. <i>GL 1998</i>   |
| 1891-1895 | <p>1891: 8 % of the population of Tlalmanalco owns land, 18 % in San Juan A, 20% in San Lorenzo, 20 % in SantoTomas A. (hamlets around Tlalmanalco) <i>HG 284</i></p> <p>1894: The company (Fábricas de Papel de San Rafael y Anexas S.A.) is established and starts working with machine No. VII with a daily production of 10 tons. Raw materials are straw and rags (pasta de trapos). There are around 150 workers. Management is composed of: José Sanchez Ramos (General Director), Andrés Ahedo (Director), José Martinez Magollo (Payer - treasurer), Engineer de la Poza (engineer of canals, plant, and other works) <i>Crisoba, 1982</i></p> <p>1890 - 1894: European experts work on the installation of the factory. The water system started to be constructed after a contract with the State of Mexico on water supply was signed. The water system was 16 km long and consisted of 5 reservoirs with 8175 m3. <i>AM 41</i></p> <p>Natural factors are most favorable: access to raw materials such as water and timber; hydro power generated by local water falls, low temperatures make cooling for the paper manufacturing process possible and proximity to Mexico City, the main national market; connection with the railways. <i>HG 289</i></p> <p>1893: J.S. Ramos signs an agreement with Vicente Villada, governor of the State of Mexico (State of Mexico), that ends the current veneros (agreement) on water. The factory is concessioned - given the use of the sources and build hydro works on common lands to produce the power required for its activities. <i>HG 297</i></p>  |
| 1896-1900 | <p>1896: The municipal authorities have an agreement with JS Ramos to guarantee the supply of raw materials (water and lumber) <i>LEF</i></p> <p>1896: The haciendas of Sta Catalina and Zavaleta are bought by San Rafael to supply raw materials. <i>HG 296</i></p> <p>1896: Local protests led by Pedro Violante to oppose the monopolistic usufruct of the forests by the factory. PV argues that this agreement did not allow local dwellers to practice complementary activities such as charcoal, bows, etc,... They went to Chalco - the district capital - and to the State governor in Toluca in vain. They were not received. <i>HG, 300</i></p> <p>1897: After local dwellers protested, Porfirio Diaz intervenes with a laudo (settlement) in favor of the company. This laudo confirms the validity of the contract but modifies its conditions. The mountains are divided into two areas. One is to be exploited by the factory and another for the needs of local dwellers. On the other had, the rent is reduced from 100 pesos monthly to 75 and the contract is for 20 years instead of 1 as initially stated. This rent was to be managed by a (junta) group of industrialists to make local material improvements to be proposed by the municipality. In relation to water, the factory got committed to “build and maintain two inch wide pipes from the factory so that these dark waters don’t mix with water used domestically by dwellers”. <i>HG 301</i></p> <p>1900: The forests are getting exploited; direct (siembra) sowing and plantations. First roads into the forests are being built. Supply of lumber is also from the States of Veracruz, Rio Frio, Morelia and Puebla. Lumber is transported through railways built by the company <i>AM 44</i></p> |
| 1901-1905 | <p>1905: The cellulose plant (Planta de pasta ) produces 4000 tons a year, consuming 12,000 m3 of (oyamel) fir a year. <i>NR 1999</i></p> <p>1905 or 1906: SR creates its own forests for supply on its own lands at the S and SW of the Izta Popo. Specices are abies religiosa, oyamelt (altitude pines and firs). <i>CDI, 1938</i></p>   |
| 1906-1910 | <p>1909: A group of local dwellers form T proposed to divide the mountains for resource exploitation. The San Rafael opposes the project at the SecAgri arguing that “the immediate consequence would be the destruction of the forests”. <i>HG 302</i></p> <p>1910: Demetrio Martinez owns the 9,775 hectares of San Juan de Guadalupe, Antonia Martinez 3909 hectares de Guadalupe and JdLM 1,975 hectares of Zavaleta haciendas. <i>MAAP 42</i></p>  |

|           |  |
|-----------|--|
| 1911-1915 | <p>The revolution.</p> <p>1911: The General Lechuga y Beltrán and the Colonel Trinidad Tenorio heading the zapatistas took over the factory and used the casino as headquarters. <i>Crisoba, 1982</i></p> <p>José de La Macorra, one of the first leaders of the firm, asked for the intervention of the federal forces to protect the installations of the firm. Workers used to go to work dressed like Zapatistas. <i>Crisoba, 1982</i></p> <p>1911: First beneficial results of the plantation. <i>CDI, 1938</i></p> <p>1911; Lumber extraction is interrupted. <i>AM 45</i></p> <p>1915: The Constitution and the Article 27 sets the modalities for land reform. <i>HG 306</i></p>   |
| 1916-1920 | <p>Population diminished in Tlalmanalco. Hunger and emigration as main causes. <i>AM 63</i></p> <p>August 1914 -1919: The factory is closed due to the revolution. <i>HG 303, AM 63</i></p> <p>1917: SJA, Tlal (1924), STA (1933), SAR (1922), SJZ (1936) apply for land allocation on the Hacienda Z. <i>HG 307</i></p> <p>1920: losses are estimated to 2,3 million pesos. <i>AM 63</i></p> <p>1920: factory reestablished and starts producing paper again. The company has around 1000 workers and employees. <i>Crisoba, 1982</i></p> <p>1920: new workers arrive at the factory. <i>AM 63</i></p>  |
| 1921-1925 | <p>1923: The Municipality sets new conditions for the exploitation of the forests: a monthly contribution of 100 pesos for 50 years only, the repair of the way (camino) between Tlalmanalco and Miraflores, the change of water pipes and the construction of a water reservoir sufficient for the supply of three days, the change of public street light and that dirty water ( from the factory) not to be mixed with clean water. <i>HG 304</i></p> <p>1925: The SR village is acknowledged as the most advanced - powerful (potentado) in the region. It has its own electric light and transportation services. <i>Crisoba, 1982</i></p> <p>1924: The factory contracts lumber supply with the BC ameca and Ecatingo, La Gavia. Toluca, . <i>HG 309</i></p> <p>1925: Plantation is started again in Z. SC, Apasco and G. : 200,000 liters of seeds : 196,000 liters of oyamelt, are collected and 110,000 liters of oyamelt seeds are planted. 2,5 million oyalmelt plants are produced and 400,000 eucalyptus <i>CDI, 1938, p 12</i></p> <p>1925: attempts to make cellulose from eucalyptus, <i>CDI, 1938</i></p> |
| 1926-1930 | <p>1930: As a result of land reform, the company has lost 14,000 ha. <i>BF 21</i></p> <p>1930: SR has 8 machines and produces 40 tons a day. <i>AM 48</i></p>  |
| 1931-1935 | <p>1934: The <i>Ejido de Tlalmanalco</i> is established and owns 10,000 hectares of forests formerly owned by the SR.</p> <p>1935: According to a study, the company has supply problems as results of land reform and the destruction of the revolution. <i>BF 22</i></p>   |
| 1936-1940 | <p>1938: Train excursion to SR and trekking to the volcano are advertized in Mexico City newspapers.</p> <p>1938 The company has access to large forested areas with its own Seccion Forestal that supplies the factory. <i>CDI, 1938</i></p> <p>1939: the SR plant has 8 machines and manufactures paper for books, magazines, color papers and cardboard of all types. <i>Crisoba, 1982</i></p> <p>1938 The Izta Popo park is decreed above the altitude of 3000 meters forests can not be exploited.</p>  |
| 1941-1945 | <p>1942: New Forest law; the <i>Union Forestal Industrial</i> is established as an entity to implement the law.</p>  |
| 1946-1950 | <p>1947: Presidential decree: All forests under the administration of the <i>Forestal</i> are to supply the factory. <i>BF 24</i></p> <p>1947: the Forestal is established in all the territory - excluding the Izta - Popo park. The law on agrarian reform indicates that contracts between the ejidos and the Forestal have to be signed yearly. <i>AM 66</i></p> <p>1948: the boundaries of the National Park are lowered to 3000 m, which reduces the size of the park by about half. <i>AM 46</i></p> <p>1948: A first forest inventory is conducted. The best techniques available then are used. <i>MA</i></p>   |
| 1951-1955 | <p>1951: More than 3000 workers at the factory. <i>AM</i></p>  |
| 1961-1965 | <p>1948 - 1962: There is no reforestation in the forests. <i>BF 27</i></p>   |

|           |   |
|-----------|---|
|           | 1965: A new forest inventory is conducted. In 1966, the Mexican Method of tree conservation is used.  |
| 1971-1975 | 1970: The company is financially bankrupt. It is taken over by its creditors: Nacional Financiera. <i>BF</i><br>1970-1980: Worldwide changes in the pulp and paper industry. High concentration in Scandinavia, North America. <i>AM 66</i><br>1975: San Rafael produces 66,000 tons of mechanical paste and sulfate cellulose. It is the only SC producer in the country. It produces 138,000 tons of paper and represents 10 % of the national production of paper and cellulose. <i>AM 49</i> .<br>1974: Led by Silverio Salazar, the UEFEZ (Union of forest ejidos Emiliano Zapata) is established. <i>BF</i>   |
| 1976-1980 | 1977: The UEFEZ negotiates contracts on timber with the factory.<br>1976: A new forest inventory is conducted.  |
| 1981-1985 | 1981: 43 day long strike in San Rafael. <i>JSS</i> .<br>1981: The SR is bought by Crisoba, its main competitor.<br>1982: the plant has around 1200 workers and employees. It produces cellulose and all types of papers. <i>Crisoba, 1982</i><br>1984: the Union de Ejidos (UE) is established to replace UEFEZ in order to bargain timber with SR in more favorable conditions.  |
| 1986-1990 | 1986: The UE is in internal turmoil against Salazar, who is accused of bad management practices, corruption and collusion with the factory. A new smaller union is constituted in Tlalmanalco. An audit is conducted in the UE by the Secretary of Agriculture. Results get published seven months later: \$ 9 Million are missing. However, no leader is sued to court. <i>BF 34 -39</i><br>1986: New forest law. Timber markets are liberalized. However, the UE still has to sell their timber to the factory <i>BF 60</i><br>1987: After 40 years of management, according to a report by the <i>Forestal</i> , the productive capacity of the forests has increased. Between 1962 and 1985, 36 million trees were planted on 42 732 ha. In 1984, the UF and UEFEZ signs an agreement to organize reforestation and ejidatarios finally get paid for reforestation. <i>BF 26-27</i><br>1988: Large size timber smuggling “mafias” starts in the forests managed by San Rafael. <i>MA</i><br>1988: 22 % increase in the price of timber paid by SR to ejidos. Yet, according to the SA, these prices represent about 50 % of the market prices in the region All timber sold to San Rafael is still sold as cellulose and according to the price of that kind of timber. <i>BF 41</i><br>1989: This period is a turning point for the pulp and paper industry in Mexico: liberalization, gradual opening of the national market, closing of competitors, such as <i>Chihuahua de Papel, KCA</i>  |
| 1991-1995 | 1981- 1996: Very few investments are made in the San Rafael under Crisoba-Scott for strategic reasons. Scott focuses on tissue paper and invests in plants that produce tissue while SR produces other types of paper in which Scott is not interested. Escoto<br>1990: Direccion de Caminos is closed. The ejidos don’t want to pay for its services anymore. The DC in 24 years has constructed more than 100 km per year. <i>SC</i><br>1991: Prices are liberated. After a year of negotiations between the Forestal, the San Rafael, the Secretary of Agriculture and Union of Ejidos, the 1947 decree is revised.<br>July 1991: San Rafael closes. The factory re-opens two months later with 25 % of its previous labour force and a new labour contract aligned on federal labour laws. <i>AM 74</i><br>1991: The concession (1947 decree) is canceled. <i>BF 53</i><br>1991: PROTIMBOS (State owned Promotora de bosques), a company that purchases lumber from farmers in the State of Mexico is closed. <i>P</i><br>1991 - September 9: Presidential decree: Ban on the forests of the State of Mexico. Official reasons are: need to recuperate the forests. This presidential decree on the need to recuperate the forest contradicts other official documents published by the forestal on the “improvement” of the forests. <i>BF 55</i><br>1991- 1995: The ban on the forests demobilizes the farmers movements. <i>BF 62</i><br>1995: Kimberly Clark and Scott Paper merge worldwide and San Rafael becomes part of Kimberly Clark of Mexico. |

|           |  |
|-----------|--|
|           | 1995: The ban is withdrawn. The ejidos get the permits to exploit the forests.   |
| 1996-2000 | <p>1996: the Management Plan for the Izta Popo area is published and reveals a high and quick degradation of the forested area over the last 5 years. JMC.</p> <p>1996: A new forestry law</p> <p>1997: Casa-UAM Comunidad is established as a research project aimed at promoting a community based development.</p> <p>1997- November: The ejido has the management plan to exploit the forests. Bonifacio Lozada is elected as president of ET for three years.</p> <p>1997: the PRD wins the municipal elections. For the first time a non PRI municipal government takes over. Casa UAM Comunidad participates in the design of the management plan of the municipality for 1997-2000. The collaboration finishes in conflict between the municipality and the casa uam.</p> <p>1999 September: Bonifacio Lozada is removed from presidency of ET for “ bad management practices”: 4 million pesos are missing.</p> |

Sources:

*Published material:*

NR 1999: *Jaime: monografia 1999*

*Crisoba, 1982*

*LEF: Laura Espejel: articulo fotografia*

*GL: 1998, Industrialization in the State of Mexico*

*CDI 1938: Club deportivo Internacional 1938*

*HG: Huerta Gonzalez*

BP: Bodas de Plata del sindicato

PT: Peticion de los trabajadores, 1936

Mono: Monografia 1984

MAAP - Marco Antonio Anaya Perez

AM : Azucena Mirango: geografia,...

Interviews:

IC: Indalecio Celorio, historian of the paper industry

KCA: Alcantara, Kimberly Clark.

Escoto, President of the Mexican chamber of paper manufacturers

Carrillo, financial director of SR in 1970

## Appendix E: List of interviews conducted

### List of interviews conducted (July 1999-January 2000)

| Organization                                 | Function  | Number of interviews |
|--|---|----------------------|
| Ejido de Tlalmanalco                         | President                                       | 2N                   |
| Ejido de Tlalmanalco                         | Head of the commission - feud against Bonifacio | 2                    |
| Ejido de Tlalmanalco                         | President since September 1999                  | 1                    |
| Ejido de Tlalmanalco                         | Old ejidatarios                                 | 1                    |
| Ejido de Tlalmanalco                         | Old ejidatario – opponent                       | 1                    |
| Ejido de Tlalmanalco                         | Administrative officer                          | 1                    |
| Ejido de Tlalmanalco                         | Ejidatario and treasurer                        | 1                    |
| Ejido de San Lorenzo                         | President                                       | 1                    |
| Ejido de San Lorenzo                         | Comission member                                | 1                    |
| Ejido de San Juan                            | Ex-president                                    | 1                    |
| Ejido de San Juan                            | Ex-ejidatario, external                         | 1                    |
| Ejido de San Antonio                         | President                                       | 1                    |
| Municipal Government                         | Sub regidor Agua                                | 1                    |
| Municipal Government                         | Regidora Agua                                   | 1                    |
| Municipal Government                         | Director planeacion                             | 2                    |
| Municipal Government                         | Regidor turismo                                 | 1                    |
| Municipal Government                         | Regidor health                                  | 2                    |
| Municipal Government                         | Regidor ecologia                                | 2                    |
| Municipal Government                         | Councilor ecology                               | 1                    |
| Municipal Government                         | Former mayor                                    | 2                    |
| Proyecto Sierra Nevada                       | Head Bosque escuela                             | 2                    |
| Proyecto Sierra Nevada                       | Participant Bosque escuela                      | 2                    |
| Proyecto Sierra Nevada                       | Head - Yollotlali Waste Management Plant        | 1                    |
| Proyecto Sierra Nevada                       | Head - Women project                            | 1                    |
| Proyecto Sierra Nevada                       | Convenor – Head Atlases                         | 1                    |
| <u>Casa UAM Itzla project</u>                | Director Casa UAM                               | 2                    |
| Casa UAM                                     | dweller, Chalma                                 | 1                    |
| Casa UAM                                     | Dweller   | 1                    |
| Productive project-liqueur, Tenango del Aire | Associate partner.                              | 1                    |
| Citizen Indep.                               | Lawyer  | 1                    |
| San Rafael company – Past                    | Historian                                       | 1                    |
| San Rafael company - Past                    | ex- worker                                      | 1                    |
| San Rafael company - Past                    | Ecologist.                                      | 1                    |
|  | dweller of SR                                   |                      |
| San Rafael company -                         | Ex- Union Head                                  | 1                    |

|  |  |   |
|--|--|---|
| Past   |  |   |
| San Rafael company - Past                          | Ex- worker   | 1 |
| San Rafael - past                                  | Ex- worker   | 1 |
| San Rafael Past                                    | Ex-worker, ex head of personnel, ex- social activist       | 1 |
| San Rafael Past and present                        | Current worker   | 1 |
|  | Wife of the trade union ex-leader                          |   |
| San Rafael   | Trade union ex –leader                                     | 1 |
| San Rafael company - Past                          | Retired vet. , dweller, brother and son of workers         | 1 |
| San Rafael - Past                                  | Dweller and architect                                      | 1 |
| San Rafael - past                                  | ex- head of department                                     | 1 |
| San Rafael - past                                  | ex- worker and head of brigade                             | 1 |
| San Rafael   | Ex - trade unionist and historian                          | 1 |
| San Rafael company - Municipality - Past           | Retired professor, ex - mayor, amateur historian           | 1 |
| Unidad Forestal 1947-1991                          | ex - forestry engineer                                     | 1 |
| Unidad Forestal                                    | ex - forestry engineer                                     | 2 |
| Unidad Forestal                                    | ex- forestry engineer                                      | 1 |
| Unidad Forestal                                    | ex - head of the path ways (caminos)                       | 1 |
| Unidad Forestal                                    | ex- buyer lumber   | 1 |
| San Rafael company - Past                          | ex-worker  | 1 |
| San Rafael company - Past                          | Financial Director in 1969-1972                            | 1 |
| San Rafael - Past                                  | Ex- trade union leader                                     | 1 |
| SanR afael - Present                               | Current trade union leader                                 | 1 |
| San Rafael company - Past                          | Ex- trade union leader                                     | 1 |
| San Rafael now                                     | ex- worker   | 1 |
| San Rafael now                                     | Head of department   | 1 |
| San Rafael now                                     | worker   | 1 |
| San Rafael now                                     | Dentist  | 1 |
| San Rafael now                                     | Head of personnel  | 1 |
| KIMBERLY CLARK                                     | Headquarters in MC   | 1 |
| KIMBERLY CLARK                                     | Worked at San Rafael 1991-1996                             | 1 |
| San Rafael now                                     | Director of services                                       | 1 |
| MARTIN velvet company                              | Plant manager  | 1 |
| Cartonerias - cardboard factories                  | Legal rep of 10 plants                                     | 1 |
| Paper and Cellulose Chamber                        | Secretary General  | 1 |
| Paper and Cellulose Chamber                        | Ex-president   | 1 |
| PROBOQUE   | Head reforestation Eastern Part - State of Mexico.         | 1 |
| SEMARNAP   | Federal ecology secretary                                  | 1 |
| SEMARNAP   | Federal ecology secretary - National Institute for Ecology | 1 |
| SEMARNAP   | Federal ecology secretary                                  | 1 |
| Sec. Ecologia Edomex                               | State level ecology secretary                              | 1 |
| UAM - Environmental Diagnostic for park management | Coordinator of the management plan and research            | 1 |

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