

ACCESS TO LAND- BASED RESOURCES UNDER THE INFLUENCE OF LAND REFORM:

A CASE STUDY FROM AN AGRARIAN
COMMUNITY IN MEXICO

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Abstract

This study provides important empirical and analytical insights that represent a step forward towards a deeper and better understanding of the effects of land reform and land policies on the distribution of access to land-based resources. It explores the extent to which the process of land reform during the early 1990s, and the subsequent implementation of complementary land policies and programmes brought deep modifications to the way in which agrarian communities obtain benefits from resources.

The empirical evidence on which this research is based consists of both qualitative and quantitative data elicited by a combination of research methods applied to a case study design. The case study chosen is San Francisco Oxtotilpan, an agrarian community in Mexico's central highlands that is home to the smallest indigenous group in the region: the *Matlatzinca*.

The theoretical and analytical framework designed takes into account the main scholarship on access to natural resources. This extended analytical framework of access to land-based resources provides a characterization of access mechanisms that disentangle the complex set of cultural, socio-economic and political processes underlying access to land-based resources. It enables an assessment of the effects of the implementation of land reform-related policies and programmes over the different ways in which members of the agrarian community benefit from land-based resources.

The study concludes that the implementation of land policies in Mexico since the early 1990s has brought deep modifications in the local governance of land-based resources. It illustrates that the differential distribution of benefits from land-based resources depends on households' ability to use a set of access mechanisms to gain, control or maintain the flux of benefits from land-based resources. Results show that when it comes to land-based resource governance, the implementation of land policies and programmes has produced conflicts between the agrarian community and external politico-legal institutions –especially from the State. Furthermore, it modified the internal structure of the agrarian community, and consequently, the complex set of mechanisms that shape the distribution of access to land-based resources available.

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List of Acronyms

CDI	<i>Comision Nacional para el Desarrollo de los pueblos Indígenas</i> National Commission for Indigenous peoples' Development
CEDIPIEM	<i>Consejo Estatal para el Desarrollo Integral de los Pueblos Indígenas del Estado de México</i> State Council for Integral Development of Indigenous Peoples of the State of Mexico.
CONAFOR	<i>Comision Nacional Forestal</i> National Forest Council
CONAPO	<i>Consejo Nacional de Población</i> National Population Council
INEGI	<i>Instituto Nacional de Estadística, Geografía e Informática</i> National Institute of Statistics, Geography and Informatics
NAFTA	North American Free Trade Agreement
PROCEDE	<i>Programa de Certificación de Derechos Ejidales y Titulación de Solares</i>
RAN	<i>Registro Agrario Nacional</i> National Agrarian Registry
UAEM	<i>Universidad Autónoma del Estado de Mexico</i> Autonomous University of the State of Mexico
SRA	<i>Secretaría de la Reforma Agraria</i> Ministry of Agrarian Reform
SEMARNAT	<i>Secretaría de Medio Ambiente y Recursos Naturales</i> Ministry of Environment and Natural Resources

List of Spanish and *Matlatzinca* Terms

Adobe: mix of mud/clay and straw used to straw.

Agostadero: Summer pasture/grazing.

Apoyo: Aid programme.

Barbecho: Fallow.

Canicula: A hot and dry period between rainy seasons.

Cosecha: Harvesting.

Comisariados: Representatives of *Ejido* or *Tierras Comuales*.

Comuneros: Members of *Tierras Comuales*.

Delegados: Community representatives in the Municipality government.

Ejidatarios: Members of *Ejido*.

Elote: Corncob.

Faena: Labour corresponding to a working day.

Fiscal: Community member in charge of a traditional or religious festivity.

Fiscalito: Treasurer for the traditional council.

Hacienda: A large landed estate. Especially used for farming or ranching and owned by a single family or landowner.

Jornales: Common labour carried out by members of the agrarian community.

Jornaleros: Labourers. Can be paid with wages or faenas.

Mayordomos: Representative of each of the colonies of the community. Organizers of traditional festivities.

Mbeshoque: Assistant of the Mayordomo.

Milpa: Agricultural plot mainly devoted to Maize but also includes other agricultural products for the consumption of the household.

Monte: Wasteland. Also referred to forest and grazing in common lands.

Peon: Labourer.

Pulque: Fermented beverage obtained from *Maguey (Agave Salmiana)*.

Tamal: Tamale. Traditional dish.

Temazcal: Traditional steam bath.

Tortilla: Thin, unleavened flat bread made from finely ground maize.

Varillas: Thin and long stalk used in the confection of fireworks.

Yunta: Ploughing utensil pulled by two oxen, horses or mules.

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CHAPTER 1. INTRODUCTION

During most of the 1990s, land reform was regarded as the ultimate approach to rural and agrarian development and its implementation was supported by a wide array of development agencies, international funding institutions and many nation-states. Governments across Asia, Africa and especially in Latin America have implemented policies and programmes designed to redistribute land from large landowners to landless and tenants (Kay 2007; Kay *et al.* 2008; Sikor and Lund 2009; Sjaastad and Cousins 2009). This process of land redistribution took place in Mexico after the end of the revolution war in 1910 and during most of the 20th century; however, Mexico's land reform during the 1990s was centred on the provision of formal titles as the means to increase land tenure security.

It is argued that state-led land reforms do not comprise only land titling and certification; it also includes other land policies that come together as a package, and that have direct or indirect social, political and economic implications over the management of land-based resources at various organizational levels. The social, political and economic implications of the 1990s land reform in Mexico, and the accompanying set of land policies and programmes demands a renewed analysis of their effects on access to land-based resources.

Evidence suggests that the implementation of land reform-related policies encounters profound problems when dealing with local communities due to their reliance on an intricate bureaucracy and 'top-down' initiatives (Kay 2007; Kay *et al.* 2008; Sikor and Muller 2009). Empirical evidence from Mexico shows that State-led land reform has created contrasting –and often unexpected– outcomes, especially when the policy itself does not take into account local institutions and consuetudinary law (Klooster 2003; Nuijten 2003a; Bouquet 2009; Barsimantov *et al.* 2011). The emergence of policies directed to land-based resource management thus opens up a vast research area dealing with the effects that land policies have on access to land-based resources.

The current trends in land grabbing and dispossession, the increasing prominence of campaigns for agrarian reform and the recognition of land rights for peasants

and indigenous peoples, and recent political discussions about the production of agro fuels, food prices and conservation of land resources urge development professionals and academics to re-evaluate the effects of land reform and land policies (Chimhowu and Woodgate 2006; Borras 2008; Kay *et al.* 2008; Borras and Franco 2010). This study contributes to relocate land policy effects in the development agenda by offering an alternative analytical approach to the effects of the land reform process in Mexico over access to land-based resources.

Despite an extensive intellectual enquiry, few academic approaches deal explicitly with the analytical and methodological implications of research based on access. Although this research does not aim at homogenising the term, it adds to the growing body of research about the effects of land policies on local communities. Furthermore, this thesis is an outcome of empirical analysis of the effects of land reform-related policies on the ability people has to obtain benefits from resources.

The research uses an extended analytical framework entailing the main theoretical approaches to access. This analytical framework is designed to provide a better understanding of the mechanisms through which community members obtain benefits from land-based resources and the way these communities relate with external institutions. Moreover, it is argued that access is embedded in the different organizational levels of agrarian communities in the rural context of Mexico. Hence, the analytical framework designed for this study allows access research to elaborate on the mechanisms that different social actors use at different organizational levels (households, or groups of households, agrarian communities, consuetudinary governance bodies and State-based institutions).

The study is based on the analysis of empirical information obtained from a case study of an agrarian community in Mexico's central highlands. The empirical data elicited includes both qualitative and quantitative information that informs the analytical framework designed. The conceptual and empirical insights that this research entails as well as the methodological approach that it adopts aim at being a modest step towards a deeper and better understanding of the effects of land reform and land policies on the distribution of benefits from land-based resources.

The following sections deal with the research questions and the general outline of this thesis.

1.1 Research questions

There is an extensive literature dealing with the implementation of land reform in Mexico, especially in its last stage that started in 1990. Recent land policies and programmes passed by the Mexican State are often related to the implementation of the early 1990s land reform, although, without a systematic analysis of their implications for agrarian communities' ability to derive benefits from land-based resources. The focus of this research is therefore on access to land-based resources in the context of this on-going introduction of land reform and the consequent implementation of policies included in these legal modifications. In other words, land reform in Mexico is analysed as a political process that brought changes on the local political economy, whose effects can be perceived on many organizational levels and on a wide array of land-related activities.

To achieve a better understanding of the way in which agrarian communities in rural Mexico obtain benefits from resources in the context of land reform, this thesis is based on the empirical analysis of a case study from an agrarian community in Mexico central highlands. The community of San Francisco Oxtotilpan was chosen for the physical characteristics of the land-based resources available. Located on a small valley surrounded by dense forest, the community has a wide portfolio of productive activities directly related to land-based resources. Furthermore, the partial location of the community within the boundaries of a national park has deep implications in the way in which the agrarian community relates to the State in terms of conservation of natural resources.

Furthermore, the smallest indigenous group in the region inhabits San Francisco Oxtotilpan: the *Matlatzincas*. The selection of this agrarian community as a case study also responds to the strong consuetudinary institutions that frame the cultural and social organization of this indigenous group. Their ability to shape the distribution of local land-based resources also frames the relation between the agrarian community and external institutions, especially from the State. Evidence

of this is the extent to which San Francisco Oxtotilpan has participated in a series of land policies. In general terms, the case study chosen provides an example of an agrarian community in rural Mexico where multiple cultural values, legal systems and institutions collide. Their strategies for accessing land-based resources, internal structure and reception of external interventions illustrate the reach of current official land-resources policies and programmes, and the relation between the State and agrarian communities when it comes to land-based resources management.

In order to achieve a deeper understanding of the issues around access to land-based resources in the context of land reform, three research questions were designed. These research questions address three main analytical levels: the State-agrarian community interface, the agrarian community itself, and households as the lowest analytical level. The design of these research questions also responds to the three categories of access mechanisms as identified by the analytical framework of this research: rights-based mechanisms, structural and relational mechanisms, and household productive resources. Although individual chapters do not tackle each specific question, the structure of the thesis enables a holistic analysis of the three questions explained below.

1). How has the Mexican State implemented land reform and land-based resources policies and what are the responses of agrarian communities in Mexico?

This question addresses the need for better understanding the different development perspectives and political processes that led the Mexican State to implement land reform policies from the early 1990s. This research sheds light upon the effects of two main processes of land reform: the modification of the 27th article of the National Constitution and the introduction of a new agrarian law. These legal modifications triggered the introduction of a wide package of policies and programmes directed to regulate land-based productive activities as well as natural resources conservation.

Chapter 4 covers the first part of this question, dealing with the background of the implementation of land reform in Mexico, its implications and specific legal modifications, and the further policy mechanisms implemented in the aftermath of

these legal changes. Insights about the responses agrarian communities have had, as recipients of these land reform-related policies and programmes, are included in Chapters 5, 6 and 7. More specifically, Chapter 5 deals with the responses of agrarian communities in terms of governance bodies and consuetudinary law; while Chapters 6 and 7 deal with the responses of individual households and the agrarian community.

2). *How and why has the introduction of land reform-related policies modified agrarian communities' ability to obtain benefits from land-based resources?*

The main aim of this question is to elaborate on the effects of the land reform and land policies on the way in which different social actors gain, maintain or control access to land-based resources. This question also concerns the analysis of external interventions in the form of official policies and programmes to modify both the internal agrarian structure and governance, and the relation the agrarian community has with external institutions; modifying, consequently, the agrarian communities' ability to benefit from landed resources. The analysis also highlights the restrictive character of some policies that have direct impacts not only on the internal structure of the agrarian community, but also on deeply-rooted cultural and social activities carried out by its members.

This research question also highlights the combination of land reform-related policies (such as the introduction of the land titling programme) and other policy mechanisms for biodiversity conservation and social development (laws and programmes related to the National Park, or the provision of cash transfers as a means of development aid respectively). The study of this policy context complements the previous research question by assessing different ways in which the Mexican State relates to agrarian communities and *vice versa*, and its ability to promote local development in the rural context. In general terms, the extent by which the introduction of land reform and conservation policies modified peoples' ability to obtain benefits is reflected in the use of different mechanisms of access. These effects are visible on the different analytical levels on which this research relies (household, groups of households and agrarian community). In this way, this empirical analysis is closely linked with the following research question.

3). How and why different mechanisms of access shape the distribution of benefits from land-based resources?

This question is answered by the empirical analysis of the mechanisms put in place by different social actors to obtain material and non-material benefits from land-based resources. Moreover, the analysis of access mechanisms also draws attention to the way these mechanisms enable social actors or restrict others from obtaining benefits. In other words, access mechanisms as the means to gain, control or maintain the flux of material and non-material benefits. As stated by the analytical framework, these mechanisms are classified as rights-based mechanisms (in which property is the central feature), structural and relational mechanisms and control over productive resources that can be linked to activities not necessarily related to land-based resources.

The current policies and programmes directed to regulate land-based activities have implications in the local distribution of access to resources. These implications range from the modification of the relationship between community- and State-based politico-legal institutions (especially regarding issues of property), to modifications in the internal structure of agrarian communities in rural Mexico and the social relations of its members. The case of San Francisco Oxtotilpan illustrates that the introduction of land policies not only has had deep implications in the previously mentioned aspects, but also for the wide array of productive activities that make up the community's livelihoods. In this sense, the external interventions in the form of development and conservation policies imply a modification in the social actors' ability to either obtain benefits from land-based resources or gain, maintain and control who and how these benefits are obtained.

1.2 Thesis outline

This thesis is divided into eight chapters that include this introduction. The second chapter synthesises theoretical approaches to access into an analytical framework of access to land-based resources. Following the precepts of Ribot and Peluso (2003), access is defined as the ability to derive benefits from things; however, the analytical framework of access explained in this chapter is an extended version of previous conceptual frameworks that comes as a result of a combination of relevant theoretical, conceptual and analytical approaches to access. By providing a clear definition of the concepts involved in the analytical framework, Chapter 2 provides the theoretical basis for the empirical analysis included in this thesis. Hence, this chapter describes in theoretical terms the components and mechanisms of access.

The methodological tools applied during the process of fieldwork as well as the analysis of the empirical information obtained rely on the analytical framework explained in Chapter 2. Chapter 3 presents the research design and methodology. It explains the methods applied during the fieldwork and the data analysis in which this study is based. There are two issues highlighted in this chapter regarding the methodology designed; first, the use of a case study as a research approach and second, the combination of methods and data to achieve the empirical goals and illustrate the analytical framework of this study. Chapter 3 also underlines the indicators used to elicit information about each specific concept used in the analytical framework referred to in the theoretical chapter (Chapter 2). Furthermore, Chapter 3 introduces San Francisco Oxtotilpan as the case study selected. It emphasises the importance of this case study as a valuable example of the dynamics of access shared by other agrarian communities in the rural agrarian context of Mexico. The methodology also provides the rationale behind choosing a combination of data elicitation techniques that provided the means for obtaining both qualitative and quantitative information. Besides explaining each specific research technique applied and the type of data obtained, this chapter also explains the importance of mixing qualitative and quantitative methods to obtain more in-depth insights from the case study.

Chapter 4 provides the background of the implementation of land reform and land-related policies since the early 1990s in Mexico. The analysis of the policies included in this chapter reflects on the development perspectives underpinning the design and implementation of such policies at that time. The historical evolution of land reform and land policies is linked with two main stages: the modification of the agrarian structure, and the creation of new official legal frameworks that in turn lay the foundations of new politico-legal institutions, policies and programmes dealing with land-based resources. The analysis of the background of land policies provides a better understanding of the unexpected consequences of external interventions in agrarian communities, and the different strategies implemented by these communities to cope with the modifications brought about by these policy mechanisms.

Chapter 5 explores the first category of access mechanisms: rights-based mechanisms. Property, being the central feature of this classification of mechanisms, plays an important role in the distribution of benefits from land-based resources. Furthermore, property is at the core of legal and illegal mechanisms of access. This research acknowledges that any given activity around land-based resources can either be considered as legal or illegal depending on the legal framework that sanctions it. Chapter 5 provides evidence as to how different institutions (consuetudinary from the community and Official from the State) sanction their claims over property, often in contesting terms. Property is conceptually located within a broader framework that is access. It is stated that being an access mechanism, it is possible to obtain benefits from land-based resources through property claims. Given that land policies have property at the core of their focus, property becomes the subject of disputes over the authority of State-based and consuetudinary institutions. These disputes illustrate the need for a policy sensitive to context; in other terms, land policies that take into account the physical, cultural, economic, political and social particularities of communities that receive them. This argument is illustrated by empirical evidence from the case study.

Chapter 6 takes on the next category of access mechanisms: structural and relational mechanisms. It focuses on the way in which households in San

Francisco Oxtotilpan obtain benefits from land-based resources through identity, interpersonal relations, markets and knowledge. These access mechanisms are analysed by this research as deeply mingled in the structure and social relations shared by the members of the agrarian community. Additionally, Chapter 6 highlights the relevance of the relation between structural and relational mechanisms of access and the land-based activities carried out at the agrarian community level. Furthermore, Chapter 6 deals with the effects of the implementation of land reform-related policies on the internal structure of the agrarian community around land-based resources governance, and the social relations of its members. Hence, this chapter provides important empirical evidence as to how agrarian communities are organized around land-based resources and the extent to which material and non-material benefits from these resources are differentially distributed among different households.

During the fieldwork stage it was evident that households' differential control over other kinds of resources (not necessarily related to land-based resources) plays a central role in the distribution of access to land-based resources. A series of productive activities carried out by household members provide the means by which it is possible to shape the flux of benefits from landed resources. Hence, Chapter 7 deals with the extent to which households in San Francisco Oxtotilpan rely, on the one hand, on other productive activities to diversify their livelihood portfolio, and on the other hand, to acquire financial capital, labour and technology. The empirical analysis presented in Chapter 7 shows that households' control over financial capital, labour and technology has deep implications on the distribution of access to land-based resources across the agrarian community.

The final chapter provides a synthesis of the main findings of this research as well as their implications for the design and implementation of policies that could potentially influence access to land-based resources. This chapter also reflects on the implications of this research findings to the theory and practice of development studies in general and access research in particular. The final section of chapter 8 outlines a series of issues for further research.

CHAPTER 2. A THEORETICAL FRAMEWORK FOR UNDERSTANDING ACCESS TO LAND-BASED RESOURCES

2.1. Introduction

This chapter addresses the main literature dealing with the concept of access. From the analysis of relevant studies and theoretical approaches to access it is possible to obtain an analytical framework that outlines on one hand, the methodology applied in this study, and on the other, the empirical analysis of the data obtained from the fieldwork. The analysis of relevant conceptual approaches included in this chapter build on an analytical framework that aims to provide a more adequate and empirically grounded definition of access. Furthermore, this analytical framework establishes a series of access mechanisms that shape the distribution of benefits from land-based resources.

This chapter is organized into five sections including this introduction: The second section aims to introduce the two main theoretical positions that inform the analytical framework of this research: the theory of access by Ribot and Peluso (2003) and the environmental entitlements framework (Leach *et al.* 1999). The way in which these influential conceptual approaches are related and their key differences raise issues that this research addresses by designing an enriched analytical framework of access to land-based resources. The analytical framework proposed in turn, provides a classification of mechanisms that shape the various ways social actors derive benefits from land-based resources. These mechanisms are rights-based, and structural and relational mechanisms. Furthermore, the analytical framework identifies a series of other productive resources that have effects on access to land-based resources.

Section 2.3 discusses the first category of access mechanisms regarding land-based resources: rights-based mechanisms. This section includes a discussion about the way in which property rights allow social actors to derive benefits from resources; therefore, property is located at the core of rights-based mechanisms.

Furthermore, this section discusses the main ideas of property found in development and natural resource literature. Property is seen as an important mechanism by which people obtain benefits from things; however, property is only one among others mechanisms that shape access to land-based resources.

Section 2.4 deals with the second category of access mechanisms regarding land-based resources defined as structural and relational. Structural and relational mechanisms are shared by diverse groups of households within a community when it comes to obtaining benefits from land-based resources. This section analyses the way in which shared relationships and structures shape the distribution of benefits from resources as well as the relationship the agrarian community has with external social actors. Section 2.5 draws on other productive resources that social actors control in order to influence their access to land-based resources. The last section of this chapter includes the general conclusions and a discussion of the limitations of the analytical framework proposed.

2.2. Theories of Access and Entitlements

This research aims to systematically develop a working definition of access that contributes to the improvement of the understanding of local natural resource management. The definition of access that will help to develop this analytical framework is “the ability to benefit from things –including material objects, persons, institutions and symbols” (Ribot and Peluso 2003:153).

Access has often been defined in common pool resources and collective action literature as the right to physically step into a resource system while alienating and excluding other users (Ostrom 1990; Schlager and Ostrom 1992; de Janvry, Gordillo et al. 2001; Nyamu-Museby 2006). When looking at the most recent literature on access to resources from a development perspective, the concept of access still has different theoretical and empirical interpretations (Mwangi and Dohrn 2008; McDermott 2009; Chaudhry, Bohra et al. 2011; Elmhirst 2011; Griffith-Charles 2011; Sultana 2011). There is no consensus about the elements that make up access to resources, and furthermore, there is a wide array of aspects that had been taken into account when looking at the mechanisms through which social actors benefit from resources. By contrast, recent studies of decentralization

and natural resource governance have adopted the notion of access as the ability to benefit from resources in order to explain the conflicts between and among different levels of political actors (Tugault-Lafleur and Turner 2009; Borrás and Franco 2010; Clement 2010). By analysing peoples' ability to benefit from resources, it has been possible to find out how some social actors appropriate, control and maintain access to specific resources while others do not (Ribot 1998; Tugault-Lafleur and Turner 2009).

According to Ribot and Peluso (2003:158) “*control* is the ability to mediate others' access”. Control over a resource implies the enacting of the power of specific and often dominant social actors, to determine the direction of action (Blaikie 1985; Berry 1989; Peluso 1993; Wardell and Lund 2006; Escobar 2008). Maintenance implies social actors are able to keep a particular sort of resource access open (Berry 1989; Ribot and Peluso 2003); and appropriation is the process by which access is established, ranging from various forms of negotiations and bargaining to violence and imposition (Ribot 1998; Ribot 2004; Osés-Eraso and Viladrich-Grau 2007; Escobar 2008; Barsimantov, Racelis et al. 2011).

Taking into consideration these politico-economic aspects of access, this research acknowledges that access to resources is socially differentiated (Mearns 1995; Leach *et al.* 1999); and that this differentiation is always changing according to the position of different social actors and their ability to enact different ‘bundles of powers’ (Berry 1989; Few 2002; Ribot and Peluso 2003). Ribot and Peluso (2003:154) provide an explanation of the way these ‘bundles of power’ interact:

“[...] we explore the range of powers –embodied in and exercised through various mechanisms, processes, and social relations– that affects people's ability to benefit from resources. These powers constitute the material, cultural and political-economic strands within the “bundles” and “webs” of powers that configure resource access. Different people and institutions hold and can draw on different ‘bundles of powers’ located and constituted within ‘webs of powers’ made up of these strands. People and institutions are positioned differently in relation to resources at various historical moments and geographical scales. The strands thus shift and change over time, changing the nature of power and forms of access to resources”

Although deeply rooted in history, access relations are, therefore, dynamic and dependent on the social actors' position and power within various social relationships (Ribot and Peluso 2003). This notion of access can be drawn from the entitlements analysis developed by Amartya Sen to explain the dynamics of access to a resource that is considered scarce or under threat (Sen 1981; Sen 1984; Sen 2009). For instance, Sen provides the example of food as the resource that could be considered scarce: "Starvation is the characteristic of some people not *having* enough to eat. It is not the characteristic of there *being* not enough food to eat. While the latter can be the cause of the former, it is but one of many *possible* causes" (Sen 1981:1). These *possible* causes referred to may include the diverse values, interests and beliefs of social actors that impose or/and bargain their resource priorities through the exertion of relations based on power (Agrawal and Gibson 1999; Grim 2001; Escobar 2008). Power, therefore, becomes a central feature that entitles social actors to gain preferential access to resources. This is reflected when the resource claims of specific social actors in a position of power, prevail over those of others.

According to Sen, "The entitlement approach concentrates on each person's entitlements to commodity bundles [endowments]" (Sen 1984:453-454). Entitlements enhance "a person's actual ability to do the different things that she values doing" (Sen 2009:253). The entitlements approach was developed into the 'environmental entitlements approach' (Mearns 1995, Leach *et al.* 1999), that went beyond the exploration of how social actors transform their endowments into entitlements, but also how people can gain endowments in the first place. This framework has been highly influential on analysis of community-based resource management policies and programmes and other aspects of access to resources (Gruber 2010; Saunders *et al.* 2010; Shackleton *et al.* 2010). According to Leach *et al.* 1999:233):

“First, endowments refer to the rights and resources that social actors have. For example, land, labour, skills and so on. Second, entitlements refer to legitimate effective command over alternative commodity bundles. More specifically, environmental entitlements refer to alternative sets of utilities derived from environmental goods and services over which social actors have legitimate effective command and which are instrumental in achieving wellbeing [...] An extended entitlements approach therefore sees entitlements as the outcome of negotiations among social actors, involving power relationships and debates over meaning, rather than as simply the result of fixed, moral rules encoded in law”.

The concept of ‘entitlements’ that Leach *et al.* (1999) explore in their ‘environmental entitlements approach’ is closely related to the concept of access used in the access framework proposed by Ribot and Peluso (2003). In this respect, access is considered a collection of means, processes and relations that enable social actors to derive benefits from resources; a concept that also involves power relations that go beyond the rules of formal law (as in the notion of entitlements). Furthermore, in the entitlements framework, endowments –rights and resources that social actors have, can be transformed into entitlements – legitimate effective command over resource systems, that in turn contribute to the improvement of social actors’ capabilities (Leach *et al.* 1999; Sikor and Nguyen 2007).

Hence, while in the framework of access by Ribot and Peluso (2003) access is defined as the benefits obtained from resources, deriving benefits can be the equivalent of deriving larger endowments from rights and resources (Leach *et al.* 1999; Sikor and Nguyen 2007). Endowments can be transformed into entitlements or vice versa¹; however, it depends on the empirical context and on the point in time as well as on the position and power of the social actors involved (as in the notion of access).

There is a key difference on the analysis of access to resources between the environmental entitlements framework and the theory of access. In the conceptualization of Leach *et al.* (1999), the transformation of endowments into

¹ According to Leach *et al.* (1999:233): “There is nothing inherent in a particular environmental good or service that makes it *a priori* either an endowment or an entitlement. What are entitlements at one time may in turn, represent endowments at another time period, from which a new set of entitlements may be derived”

entitlements involves all kinds of productive resources, or environmental goods and services (*ibid*: 233). The theory of access of Ribot and Peluso (2003) focuses on a particular natural resource (See Ribot 1998) and the mechanisms that shape the distribution of benefits. By focussing on a specific type of resource (such as land-based resources), access theory takes control over other productive resources as exogenous to the analysis.

This observation was operationalised by Sikor and Nguyen (2007) when making a distinction between forest-based resources and other productive resources beyond forest. Instead of considering control to all kinds of environmental goods and services as stated by Leach *et al.* (1999), Sikor and Nguyen (2007) follow the precepts of access theory when distinguishing forest endowments from other productive resources commanded by social actors. In their analysis of the effects of forest devolution, a household's differential control on non-forest resources – other productive resources– is taken as a given, narrowing down the focus of their study into forest endowments.

2.2.1. The role of institutions in access to land-based resources.

Another conceptual ambiguity between access theory and environmental entitlements framework is the role institutions play on each postulate. While for the environmental entitlements framework, institutions influence control over all kinds of productive resources and the transformation of endowments into entitlements, access theory focuses on a particular natural resource and seeks to identify all kinds of mechanisms that shape the distribution of benefits. The access framework therefore, sees institutions as the set of mechanisms that allow resource users to set up rules and norms around land-based activities.

There is a wide array of literature influenced by the notion of institutions as packages of rules and norms that operate in favour of common interests (de Janvry *et al.* 1993; de Janvry *et al.* 2001). Looking at institutions as rules and norms alone neglects the power relations that accompany institutional change through time; hence, this approach implies that institutional change mainly occurs in the form of legal modifications leaving aside the role of peoples' practices (Leach *et al.* 1999). Furthermore, The environmental entitlements framework

highlights the central role of institutions as mediators between different social actors, with power as the regulating force that determines who and how social actors access resources (*Ibid*).

Rather than looking at institutions as sets of rules alone, the environmental entitlements framework defines institutions as “regularized patterns of behaviour that emerge from underlying structures or sets of ‘rules in use’” (Leach *et al.* 1999:238). Institutions, therefore, cannot be considered static in time since rules are constantly made and remade through people's practices (Berry 1989; Mearns 1995). The environmental entitlements framework can contribute to the analysis of access to land-based resources since it takes into account that social actors have an intrinsic ability to transform endowments into entitlements through their own practices. Therefore, a combination of the access mechanisms included in the analytical framework designed can be reflected in the always-changing practices of agrarian communities².

Institutions constitute the very means by which members of an agrarian community mediate their interactions, both among community members and with external actors such as the State. Power plays a central role in the interaction and overlapping of both formal and informal institutions. For instance, social actors in positions of authority may put in place power-based relations to give a voice and stake to their own interests and agendas, pushing for legitimizing their own resource claims (Nuijten and Lorenzo 2006; von Benda-Beckmann and von Benda-Beckmann 2006). Accordingly, different politico-legal institutions can legitimize specific productive activities through the enforcement of their own legal frameworks (Sikor and Lund 2009). Legitimizing activities based on two different legal frameworks has been considered the main characteristic of legal pluralism. Studies of legal pluralism often differentiate between formal and informal institutions. Formal institutions are considered norms and have rules that require the enforcement and legitimization of third-party organizations mainly based on statutory regulations. Informal institutions are legitimized at the community-level. They are based on mutual agreement between the actors

² For a discussion about the reasons why this research uses the term agrarian community instead of rural community, please refer to section 2.5.

involved and are mediated, again, by relationships of power and authority (Leach *et al.* 1999; Sikor and Lund 2009). Given that formality depends on the legitimacy of each legal framework, this study does not make reference to the formality of each legal system; rather, it distinguishes between consuetudinary and statutory legal frameworks.

The ability that different social actors have to transform their endowments into entitlements may have a close relationship with their ability to make use of specific or a combination of access mechanisms. The case study chosen provides an illustration of this where there is a constant conflict between the community and the State to administer land-based resources, especially in forests. For instance, while rural communities push for a traditional use of timber products based on their everyday practices, the State passed a law by which the extraction of timber products for any purpose was completely banned. Rural communities base their claims over the resource on their identity as indigenous, while the State bases their claim on narratives of forest conservation.

The conflicts that arise from this struggle reflect the characteristics of the power exerted on this negotiation processes: “Power is dispersed throughout society, rather than concentrated solely in the hands of the ‘dominant’; power is entangled in social relations between agents that differ in their interests, identities and resources; and power is articulated through complex mechanisms including tactics of negotiation” (Few 2009:31). Power is therefore, important for each individual access mechanism and is put in practice when these mechanisms interact. Analysing the interaction of access mechanisms requires taking into account the role of power in mediating institutional dynamics that in turn permeate the social dynamics in which actors obtain benefits from things.

The use of the concept of power is important since the interaction between different politico-legal institutions decides who gets access to what resources. The case of the conflicting claims over resources between the State and the local agrarian communities shows that institutions hold different degrees of legitimacy. However, legitimacy is only one part of power. Hence, some social groups or politico-legal institutions might exercise power –in the form of the capacity to

influence others, to take political decisions about people's access to resources and benefits (Sikor and Lund 2009). Power, therefore, can be translated into authority, that in turn shapes the role of different politico-legal institutions in the distribution of benefits from resources.

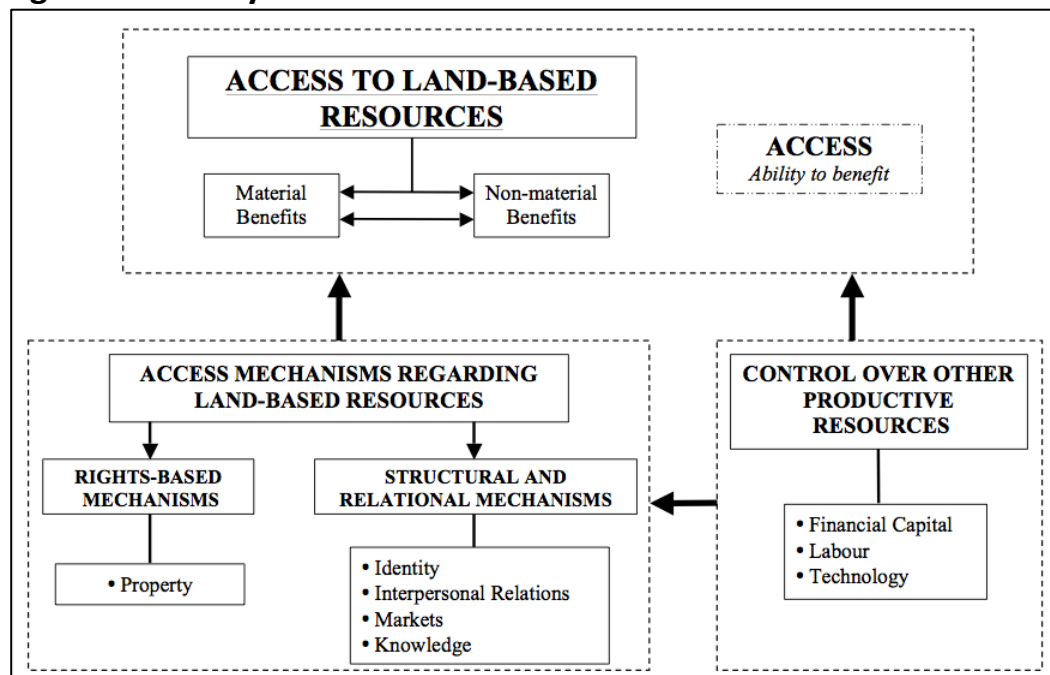
The access mechanisms included in the analytical framework are heuristic; in this sense, each mechanism may be complementary to each other depending on the context of the resources users to be studied and their dynamic networks and relations. Here is where the previously mentioned conceptual ambiguity between access and entitlements frameworks collides. While the access framework provides a list of mechanisms that “[...] enable various actors to derive benefits from resources” (Ribot and Peluso 2003:153), the entitlements approach states that there is a set of utilities that are instrumental on achieving social actors' well being (Leach *et al.* 1999). For instance, while access alone provides an explanation of how social actors obtain benefits from an array of access mechanisms, the entitlements approach regards these mechanisms as mediators on the distribution of benefits. In that sense, it was necessary to differentiate the access mechanisms proposed in the original access approach, from the notion of endowments proposed in the entitlements approach. For achieving this requirement, this research acknowledges that when dealing with a particular type of natural resources (land-based resources) there are productive resources that are instrumental in achieving households' well-being (as stated by the entitlements approach); however, it is possible to identify a set of access mechanisms that mediate social actors' benefits from this particular type of resources –rights-based mechanisms, and structural and relational mechanisms (as stated by the access approach).

Taking into account the previously mentioned conceptual ambiguities and agreements of both the theory of access and environmental entitlements frameworks this research develops an extended analytical framework as an alternative to address access to land-based resources. The following section outlines the design of the analytical framework proposed as an option for the analysis of access to land-based resources.

2.2.2. Analytical framework of access to land-based resources.

The analytical framework designed for this research includes three main categories of analysis (See Figure 2.1). The first category deals with ‘access to land-based resources’ as the main empirical interest of this research. The second category is ‘access mechanisms regarding land-based resources’. This category provides a classification of access mechanisms that are closely related with the way in which households benefit from land-based resources. The third analytical category distinguishes control over other productive resources beyond land from the set of access mechanisms. This distinction responds to the need of analysing how different access mechanisms and control over other productive resources shape access to land-based resources.

Figure 2.1. Analytical Framework



Source: Self-Elaboration

An extended analytical framework based on access is useful to understand the relationships and conflicts between resource use and the different actors and institutions of society. According to Ribot and Peluso (2003:173), “... the access framework can be used to analyse specific resource conflicts to understand how those conflicts can become the very means by which different actors gain or lose the benefits from tangible and intangible resources”. Furthermore, “access analysis also helps to understand why some people or institutions benefit from

resources; either having or not rights to them” (*Ibid: 154*). Adopting access as the main empirical interest of this research, responds to the need to provide a clear and accurate understanding of the dynamic processes and relationships involved in land-based resource management.

The use of land as a conceptual tool in this research, however, is more closely related to the notions of land used by some political ecologists and geographers that have adopted households as their research focus. Land has been seen as the basis for the constitution of a natural capital that sustains entire communities and other social systems (Scoones 1998; Ellis 2000; Ellis and Bahiigwa 2003). Land constitutes the main productive resource for rural actors, in general, and agrarian communities, in particular.

Furthermore, land provides environmental goods and services that in turn are transformed into wellbeing by different social actors (Berry 1989; Leach *et al.* 1999; de Janvry *et al.* 2001; Osés-Eraso and Viladrich-Grau 2007). Land is, therefore, the productive resource from which a wide range of social actors obtains both material and non-material benefits, and is the object of political, social and economic conflicts and disputes. Throughout the course of this thesis, there are references to landed or land-based resources; the analytical framework provided by this research aims to achieve a better understanding of who benefits from land-based resources taking into account that *land* is seen differently according to the social actor in question.

The first category of analysis (access to land-based resources) adopts the idea of access as the ability land-based resource users exert to obtain material and non-material benefits from the resources available (Madsen and Adriansen 2004). This notion implies that members of an agrarian community can benefit from tangible and intangible objects to gain, maintain and control access to land-based resources. Access analysis is, therefore, the process of identifying and mapping the mechanisms by which access is gained, maintained and controlled not only by the community members, but other actors that also have access to local land-based resources.

Following this precept, this framework proposes the second analytical category as ‘access mechanisms regarding land-based resources’. This classification aims to identify the mechanisms that shape the distribution of benefits from land-based resources across various social actors. There are two types of access mechanisms that constitute this category: rights-based and structural and relational mechanisms. Rights-based mechanisms entail legal and illegal forms of access that social actors put in place. The focus of attention of rights-based mechanisms is property, since it encompasses the relations of authority between politico-legal institutions and the community itself. Property also frames the different ways of sanctioning any activity related to land-based resources as legal or illegal by consuetudinary or official institutions³. Hence, property plays a central role in rights-based mechanisms since law, custom or convention sanction the way in which different social actors obtain benefits from resources.

The second classification of access mechanisms regarding land-based resources is structural and relational. Identity, interpersonal relations, markets and knowledge are mechanisms that shape the distribution of benefits from land-based resources across households of an agrarian community. Furthermore, structural and relational mechanisms are shared across the different households and often bounded in the structure of the whole community⁴.

There are two reasons for this analytical framework to distinguish ‘control over other productive resources’ from ‘access mechanisms regarding land-based resources’. First, given that the empirical interest of this research is land-based resources, it was necessary to identify a series of means beyond land that also shape the distribution of benefits. Control over financial capital, labour and technology also influences the distribution of the multiple benefits provided by land-based resources. This study considers these other productive resources as separate from the social structure and relations of the members of the agrarian community in question. Hence, considering control over other productive resources as exogenous to the analysis of land-based resources also allows the

³ For a further explanation refer to section 2.3.

⁴ The following sections of this chapter discuss in more detail each category of access mechanisms.

analysis of the effects of land reform-related policies and programmes into the discussion of land-based resources access. Second, the empirical analysis is based on a particular time period (agricultural cycle 2008-09). The analysis of other productive resources as fixed during the period of study allows the research to find out how controlling capital, labour and technology influence the distribution of material and material benefits and the implementation and negotiation of access mechanisms by social actors to obtain these benefits.

Acknowledging the role of controlling 'other productive resources' implies that households are not dependent exclusively on the goods and services provided by land-based resources. Control over other productive resources provides complementary inputs to the wide array of livelihood strategies that households have (Byron and Arnold 1999; Ellis 2000; Sikor and Nguyen 2007).

2.2.3. The role of wealth in understanding access to land-based resources

One of the benefits produced when households put in place the wide array of livelihood activities available is income. For analytical purposes, income is regarded as an indicator of the material benefits that land-based resources provide. Hence, making use of both types of access mechanisms (rights-based and structural and relational) might facilitate or restrict obtaining income (or any other material or non-material benefit) from land-based resources. However, in case it is impossible for a household of using these access mechanisms, it can still produce benefits from land-based resources by controlling other productive resources. For the case of income, for instance, controlling financial assets, labour or technology might give them the opportunity to obtain income from land-based resources, even when lacking other access mechanisms such as property or identity.

The treatment of income within the analytical framework implies the analysis of the different sources of income households have across a specific period of time. Access to land-based resources is related to income on short periods of time because the income sources are dynamic and change over different periods. Given that this research is based on an agricultural cycle (2008-2009), the analysis of income is central in understanding the distribution of access, not only to land-

based resources, but also to other productive resources beyond land-based resources in this particular period studied.

When dealing with longer-term effects it is necessary to relate access to land-based resources with a variable that encompasses a wider set of factors besides income. The empirical analysis of this research follows the notion of wealth entailing a wider set of features (beyond income sources) that allocate individual households within a scale of wealth status (Grandin 1988; Scoones 1998; Ellis 2000; Ellis and Bahiigwa 2003). The analysis of wealth provides insights about the benefits obtained from land-based resources beyond a single agricultural cycle.

For analytical purposes both wealth and income are indicators of the benefits obtained from land-based resources; however, while income and access relate to short periods of time (in this case an agricultural cycle), the relationship between wealth and access seeks to capture longer-term effects (such as the period in which specific policies are implemented, e.g. the case of land reform in Mexico). It is important to highlight, however, that while income is a benefit that could be obtained from land-based resources, wealth can be both a benefit and/or a result of access. For instance, having access to land-based resources can derive in a better position within a wealth ranking, however, being better off in terms of wealth might also imply to have better access to land-based resources. This characteristic of wealth is made explicit in the empirical analysis of this research.

Research into households' access to natural resources typically focuses on income, assets and expenditures; financial capital, rather than on wealth, providing a partial explanation of the way in which benefits are derived from natural resources (Barham *et al.* 1999; Takasaki *et al.* 2000; Reardon, Berdegue *et al.* 2001). Other researches have used Participatory Rural Approaches (PRA) to classify different groups of households according to their wealth (Grandin 1988; Scoones 1998; Hargreaves *et al.* 2007). It is important, therefore, to highlight the way in which this research regards income and wealth as different but complementary concepts.

As mentioned in section 2.5.1, financial capital takes the form of finances and assets that can be turned into income⁵; and consequently, into wealth. Moreover, income constitutes only one factor among others that in turn comprise wealth. For instance, a household in possession of a car might be considered in a higher wealth category than a household without it. Wealth constitutes a wider benefit resulting from the combination of livelihood strategies. On one hand wealth allows households to achieve a certain dominant social status in a longer period of time, while income alone allows households to access other productive resources such as technology in particular periods, as long as income is available. According to Ribot and Peluso (2003:166), “wealth also affects other types of access since wealth, social identity and power are mutually constituted. [...] Because of the status and power that wealth affords, those [social actors considered in higher wealth categories] may also have privileged access to production and exchange, opportunities, forms of knowledge, realms of authority and so forth”. Wealth has been characterized as a wider element of access. As Grandin (1988:1-2) states:

“Wealth is defined in terms of *access to* or *control over* important economic resources; it is often observed through higher levels of income (and expenditure) – but these are indicators of wealth rather than themselves constituting wealth. Wealth inequality is found in virtually every human community and is among the most important characteristics that differentiate people within a community. [...] Wealth involves strength and versatility (of the person, the household and the production strategy), patronage, authority and power, and access to both local and wider resources including education (and hence job opportunities) and other services”.

Wealth is a compound concept that has even been perceived as “Humanity’s most complex creation” (Beinhocker 2006). Wealth is therefore a wider mechanism that includes other sets of resources, in which income plays an important role, but not the only one, in defining wealth categories and differences. The word ‘wealth’ does not exist in Spanish as it does in English. The closest concept is ‘Richness’ (*Riqueza*). However, *Riqueza* is associated with the possession of assets and

⁵ Income is acknowledged as an indicator of the benefits that can be obtained not only from land-based resources, but also from other productive resources. References to income are distributed across the course of the empirical analysis of this thesis and often are used as a proxy for the benefits that can be obtained from any given productive activity.

money –more closely related with financial capital, while the concept of wealth used in this research is also related to the social relations around access to landed resources⁶. Wealth involves the possession of intricate sets of values, beliefs and assets that in turn will provide a better social, political, economic or identity-based wellbeing. Therefore wealth constitutes a resource that households use to locate themselves in advantageous positions that allow them to obtain more benefits from things.

Since wealth includes a wide array of factors, it is mingled with access mechanisms regarding land-based resources; specifically structural and relational mechanisms such as identity and interpersonal relations, as well as other productive resources such as access to financial capital, technology and labour. It can also show the direction of change (Ellis 2000) e.g. when and under what circumstances some members of the agrarian community have moved in or out of different wealth categories in longer periods of time, what were the triggers of this movement, how income and financial capital give people access to various opportunities to use resources in different ways, etc. Analysis of wealth and income can also provide important insights about the distribution and control over land and land-based resources.

Being sensitive to context, the analytical framework proposed in this research is an extended version of the access approach in which the typology of mechanisms is not theoretically static. The distinction between each mechanisms and its classification within each category (rights-based or structural and relational) responds to the context and conditions of the empirical case chosen. For instance, defining any given access mechanism as either ‘structural and relational mechanism’ or ‘other productive resources’ will depend on the type of resource to be assessed and the context of the empirical case in relation. The following sections describe the typology of access mechanisms regarding land-based resources and the other productive resources that social actors command.

⁶ Using *Riqueza* might mislead the aims of the analysis of this section. Although the research acknowledges income as a central component of wealth, analysis of income will be carried out separately to illustrate better the conceptual differences of these terms, and their role in access to land-based resources.

2.3 Rights-based mechanisms

Ribot and Peluso (2003:154) define access as “the *ability* to derive benefits from things” while property as “the *right* to benefit from things”. By focusing on *ability* rather than *rights* it is possible to analyse a wider range of social relations that let or constrain people from gaining benefits from resources. Rights, therefore, constitute one type of access mechanisms (among others) by which people can obtain benefits from resources. Hence, rights-based mechanisms play a very important and central role within the framework of access to land-based resources. Rights-based mechanisms imply, therefore, that the ability to benefit from something derives from the provision of rights by official law, custom or convention. Based on this notion of rights, some theorists have approached the concept of property with reference to its close links with legal rights, both consuetudinary and legal (Berry 1989; de Janvry *et al.* 2001; Ribot and Peluso 2003; Peters 2009; Borrás and Franco 2010). This thesis uses the term consuetudinary, rather than customary because the former refers to a set of norms and rules that although unwritten, regulates the activities of the agrarian community, while the latter refers to habitual practices that are shared by the members of agrarian communities, without the need of being enforced by a local governing body.

According to Commons (1978 quoted by Ribot and Peluso, 2003:155) property can be defined as “... a right in the sense of an enforceable claim to some use or benefit of something [...] An ‘enforceable claim’ is one that is acknowledged and supported by society through law, custom or convention”. This is the main idea behind looking at rights as a category of access mechanisms.

Based on the idea of rights-based mechanisms of access previously mentioned, this research looks at property as the claim or right over a land-based resources that are supported, sanctioned and acknowledged by official or consuetudinary law, custom or social convention. Dealing with this concept of property entails questioning not only about who owns the land or land-based resources? But also which politico-legal institution sanctions the claim of property over specific land-based resources?

Furthermore, property provides a set of duties and rights that mediate the flow and distribution of benefits derived from things. This research acknowledges that although in general a right corresponds to a duty, the distribution of rights and duties among a community can determine who gains, controls or maintain access. According to Ribot and Peluso (2003:159): “The idea of property being composed of rights and duties can be seen as a parallel distinction in which claiming of rights is a means of access control, while the execution of duties is a form of access maintenance aimed at sustaining those rights”.

When dealing with issues of property rights over land and land-based resources, politico-legal institutions (often official institutions of the State) have relied on different perceptions of property to design and implement interventionist policies. Furthermore, property is at the centre of conflicts of access to land-based resources, especially within agrarian communities, and between the agrarian communities and the State. Land becomes the arena of conflict and the factor in which both local users and the State converge. Literature on citizenship and collective action regards land as a central component of political and economic power (Wittman 2009), as well as a prerequisite of active citizenship (Wallerstein 2003).

The notion of property as an enforceable claim has been adopted by neo-liberal approaches to derive a concept of property rights which has been understood as the rights individuals appropriate over their own labour and the goods and services they possess (Musole 2009). These rights allow their holders to consume, obtain income from, manage or exclude and alienate other potential users (Schlager and Ostrom 1992; Hann 2007). In this sense, the concept of property – claim over something, is reduced to ownership –the possession of something. Furthermore, the notion of property in legal and economic literature has been attached to the official action of the State. The assumption of property existing only when sanctioned by the legal framework of a formal institution such as the State provided a pretext to powerful political and social entities to implement policies to regulate the relationship among themselves and local land users⁷

⁷ The idea of property as the main provider of development has been applied for the implementation of neo-liberal policies such as in the case of Mexico, in which one of the main

(Peters 2009). Furthermore, the concept of property is reduced to the official and legal recognition of ownership; however, relevant literature also assumes that there exist legal and extra-legal rights to things (Leach *et al.* 1999; von Benda-Beckmann *et al.* 2001; Ribot and Peluso 2003; Ribot 2004; Musole 2009; Peters 2009). Extra-legal rights are those considered outside either the consuetudinary or official sets of legal frameworks.

Property rights combine to some extent, both extra-legal and legal rights when recognizing that a right can be acknowledged and supported by society through either official law, and/or the custom or convention of resource users (Ribot and Peluso 2003; Ribot 2004). According to this perspective, property represents one of the components by which resource users can obtain benefits from land-based resources. Hence, this conceptual perspective of property locates it among a wider set of strategies, factors and forces that shape the benefits obtained from resources (Ribot and Peluso 2003).

The norms, rules and principles laid down by official law provided by the State, are not considered as the ultimate, nor the only way of legitimizing control of land based resources (Nuijten and Lorenzo 2006; von Benda-Beckmann and von Benda-Beckmann 2006; Sikor and Lund 2009). Shared customs or social conventions also interplay as legitimizing and enforcement units of property rights. In other words, social norms and codes of behaviour shared by communities also legitimate customary and informal property rights (Leach *et al.* 1999). The acknowledgement that property rights exist independently from the State, but are also bounded by custom, voluntary restraints or reciprocity, is the first consideration that this research takes regarding property. Hence, official and customary law, custom and/or social convention can legitimize property rights.

The notion of legal pluralism previously discussed plays an important role when analysing property. Hence, the enforcement of specific laws (either statutory or consuetudinary), can never completely set up the boundaries to the modes in which resources are accessed by people, and, furthermore, the way in which

objectives of the early 1990s land reform was to provide land tenure security. By providing recognized property rights, the new legal framework aimed at developing the rural agrarian sector that was considered backwards and unproductive (See Nuijten 2003, 2006).

power relations frame and shape access. In other words, “property relations are embedded differently in different legal orders and have different logics and systemic implications” (von Benda-Beckmann and von Benda-Beckmann 2010:172). This implies that in order to understand how different mechanisms work, it is necessary to take into account that socially-sanctioned mechanisms; consuetudinary law, social conventions and norms, together with the formal legal systems are different ways of gaining access to resources (Leach *et al.* 1999; Sikor and Lund 2009; Shackleton *et al.* 2010). In other words, the analytical framework designed for this research aims at taking into account rights-based mechanisms in conjunction with other types of mechanisms that encompass the different processes by which users obtain benefits from land-based resources.

Correspondingly, community members as direct users and secondary actors such as middle men, sellers and official politico-legal institutions base their access relations on different sets of rights enforced by law, custom or convention. *De jure* processes involve the execution of power through access to property relations enforced by law, custom or convention (Ribot and Peluso, 2003) while *de facto* processes also include extra-legal mechanisms. According to Ribot (1998:310), extra-legal mechanisms include social identity, social relations, coercion and trickery (that is misinformation, threats of violence, or even theft), material wealth or capital and physical circumstance (location or stature). The structures of governing resource use provided by *de jure* and *de facto* mechanisms are regulated by a set of socially acknowledged official and customary rules (von Benda-Beckmann and von Benda-Beckmann 2010). Given that different authorities (in the form of politico-legal organizations based either in the State or the local community) might grant different, and often contesting sets of regulations, the implications of regarding any activity as legal or extra-legal depends on the politico-legal institution that sanctions it as such. For instance, an activity that might be sanctioned as illegal by the State through statutory law could be customarily accepted by the local resource users, and therefore, accepted by the community-based politico-legal organizations, such as local authorities.

Notions of legal pluralism play a central role in understanding the distribution of authority relations around natural resources management (de Janvry *et al.* 2001;

Sikor 2004; Chimhowu and Woodgate 2006; von Benda-Beckmann and von Benda-Beckmann 2010). Legal pluralism is, therefore, a fragmentation of authority (Ribot, 2004). Obtaining benefits from things is, therefore, partially determined by the way different and often contesting authorities sanction their rights over specific objects as legitimate (von Benda-Beckmann 1995; Nuijten and Lorenzo 2006; Meinzen-Dick and Mwangi 2009). Rights-based mechanisms of access are then challenged, contested and formed into conflicts among politico-legal institutions (both from the State or consuetudinary) to legitimize their property in front of the other. From these conflicts, alterations in accountability relations and perceptions of justice arise (Bovens 2007).

There is a wide body of literature dealing with property rights formalization as the ultimate tool to fight poverty and inequality in the agrarian context (Nyamu-Museby 2006; Mwangi and Dohrn 2008; Toulmin 2008). Studies suggest that securing access rights by ensuring a safe legal framework in which land ownership is endorsed to individuals by a title or certificate became the main idea behind processes of land reform in developing countries (de Janvry *et al.* 2001; Swinton *et al.* 2003; Lipton 2009). In these studies, property is closely related to issues of ownership and private property regimes (Sjaastada and Cousins 2009). However, the role of parallel authorities when supporting property claims has been overlooked, especially in the context of communities with strong legal pluralism (for instance, indigenous groups, agrarian communities and movements, etc.) This research aims to provide insights about how consuetudinary authorities sanction property and how this provision of rights is often not compatible with securing property through official instances based on law. Moreover, the empirical design of this research shows that in order to better understand how social actors obtain benefits from land-based resources, it is necessary to consider rights-based as one category of mechanisms among others within the analytical framework proposed.

Relevant literature has dealt with the concept of authority as a kind of social identity or relation –specifically academic approaches to decentralization in natural resources governance (Benjamin 2008; Bruce and Knox 2009; Poteete and Ribot 2011). The analytical framework proposed by this research states that

authority plays a central role in issues of property. The main idea behind this treatment of authority responds to the importance of the relation of different bodies of politico-legal institutions when it comes to property claims sanctioning (Nygren and Rikoon 2008; Meinzen-Dick and Mwangi 2009). According to Sikor and Lund (2009:1): “people attempt to secure rights to natural resources by having their access claims recognized as legitimate property by a politico-legal institution. The process of recognition of claims as property simultaneously works to imbue the institution that provides such recognition with the recognition of its authority to do so. This is the contract that links property and authority. Property is only property if socially legitimate institutions sanction it”. In case of having overlapping jurisdictions over resources’ management or control, these politico-legal institutions may face conflicts over authority. These conflicts and disputes shape the way in which land-based resource users gain and maintain access to land-based resources.

Literature on decentralization has dealt with authority in terms of the land administration capacities that are devolved to traditional local authorities from central government agencies and institutions (Bruce and Knox 2009). The individuals who hold control over access to resources can represent authority. Law, custom or convention can sanction the legitimacy of this control by different politico-legal institutions (e. g. local governance bodies, municipality presidents, village representatives, supreme chiefs, etc.). It can also be acknowledged as the main cause by which groups of individuals and different politico-legal institutions may compete, above all in terms of controlling access to resources. Hence, by consolidating their authority, different politico-legal institutions can control the different ways by which their constituents benefit from things (Sikor and Lund 2009).

In the process of analysing empirically the complex relations and networks that make up access to resources, property is regarded as an important, but not unique factor that allow actors to benefit from land-based resources. As stated by Sikor and Lund (2009:5): “property rights may or may not translate into ‘ability to benefit’; and access may or may not come about as a consequence of property rights”. Property is constituted as a rights-based type of mechanism that cannot

explain by itself the intricate flow of benefits from land-based resources. In the context of access analysis, property needs to be linked with other access mechanisms that also entail who and how resource users can derive benefits. On that respect Ribot and Peluso (2003:160) mention: “Someone might have rights to benefit from land but may be unable to do so without access to labour or capital. This would be an instance of having property (the right to benefit) without access (the ability to benefit).” It is necessary, therefore, to look at the broader picture of access mechanisms to first understand, the way in which actors obtain benefits from things, and secondly, the role of property within the intricate relations of access.

Property over land has been used by the State as a tool to marginalize rural actors and territories from political and economic articulation (Swinton *et al.* 2003; Peters 2009). Historically, different States have looked at different ways to exert political influence over their citizens as a means to control labour and material resources. States, therefore, tend to regulate their citizens’ relationships with respect to land-based resources (von Benda-Beckmann 1995; von Benda-Beckmann *et al.* 2001); often through the legal recognition of land or land-based resources ownership.

Property is, therefore, the focus of the first category of access mechanisms regarding land-based resources. The following section deals with the second category of mechanisms defined as structural and relational.

2.4. Structural and relational access mechanisms

Structural and relational is the second category of mechanisms that shape the distribution of benefits from land-based resources. While rights-based mechanisms are determined by property claims, structural and relational mechanisms mediate and shape access at the level of interactions between different social actors. In other words, identity, interpersonal relations, markets and knowledge are access mechanisms that frame the structure and relations of the members of an agrarian community. The following subsections extend the discussion about the different ways in which structural and relational mechanisms shape access to land-based resources.

2.4.1. Identity

Identity is central to the sense of belonging to a community or a group within that community (Berry 1989; Ribot and Peluso 2003; Ribot 2004). In this respect, this section elaborates on a concept of community that suits better the purposes of the analytical framework proposed.

Scholarship in social sciences, in general, and development studies in particular, has taken a wide diversity of positions regarding the definition of ‘community’. A common perspective is, however, the growing interest of academics to unveil the struggles that local communities face. It seems that in the process of assessing the problems that communities have, the actual concept of ‘community’ has been used without an adequate definition.

During the 1990s the idea of community gained a central place in studies of rural change and conflicts regarding access to resources, problems of production, urbanization and markets of rural communities (Agrawal and Gibson 1999; Epstein and Jeph 2001); the clash between traditional knowledge of local communities and external scientific knowledge (Fairhead and Leach 1996; Chambers 1997), together with the extensive literature of sustainable livelihoods of rural communities (Chambers and Conway 1992; Chambers 1997; Barrow and Hicham 2000; Allison and Ellis 2001; Ellis and Bahigwa 2003). However, the complexity of the concept itself has rarely been addressed. According to Liepins (2000:24) “Many of the meanings, practices, spaces and structures of ‘communities’ are left understated, as are the contexts and people who shape

them”. In this respect, this research goes beyond the concept of ‘community’ proposed in the environmental entitlements framework. On this framework, communities are seen as dynamic entities composed by people who shape the environment around them according to their individual interpretations and agendas (Leach *et al.* 1999). Although it is necessary to consider individual interpretations, a community is a complex set of individuals that not only share a defined common space, but also knowledge and livelihoods. In the process of conducting research on natural resource management in rural areas, the term community seems even less clearly defined.

Communities in rural settings become conflict arenas over who controls resources and moreover, who has the responsibility of managing the available resources. When settled within or near a protected area (such as in the case study selected) the often-contested idea of community influences the design and implementation of resource-related policies. For instance, one of the most influential concepts adopted by the majority of International Funding Institutions (IFIs) and NGOs regarding the role of community in conservation was established by the World Commission on Protected Areas “[...] community is a human group that shares a territory and is involved in different but related aspects of livelihoods; [their members] are likely to have *face-to-face* encounters and/or *direct* mutual influences in their daily life in varying degrees political, economic, social and cultural characteristics (in particular language, behavioural norms, values, aspirations and often also health and disease patterns)” (Borrini-Feyerabend *et al.* 2004:9). A contrasting perspective has been adopted by critical scholarship that challenges the view of community as a unified organic whole, arguing that this conceptualization fails to highlight the differences within communities, and therefore, ignores how these differences affect resource management outcomes, local politics, and strategic interactions within communities (Liepins 2000; Pretty and Smith 2004).

These different and often conflicting conceptions have led to a definition of rural communities as complex organisms in which not only practices and livelihoods coincide, but also intricate sets of values and beliefs that shape the relationship between the local community and its territory. Contemporary rural scholarship has

reached the conclusion that rural communities share specific traits that mix the actual physical use of land-based resources and the practices, values and representations influencing what has been named the use of rural space (Madsen and Adriansen 2004). Consequently, aiming to provide an analytical tool, which is more helpful in understanding access to resources, this research considers agrarian communities rather than rural communities for two reasons:

First, the resources that this research refers to as ‘land-based’, stress the life of the research subjects depend on different degrees on land-based activities. For example, as it will be shown in the empirical chapters, the community chosen for the case study relies on non-farming activities such as migration and labour carried out in nearby cities; however, these activities are regarded as complementary to the activities that link the villagers with their agricultural plots, their farms and their surrounding land. This implies that while ‘rural’ can refer to spaces that are separated from urban spaces, ‘agrarian’ denotes that livelihoods are complex sets of activities that include a close relationship with urban spaces above all in terms of labour and market opportunities; as complements to land-based activities. Hence, looking at communities as agrarian entities allows an analysis that links these spaces with others, such as other cities or regions. This implies overtaking the simplistic idea of certain studies that look at ‘the rural’ existing in the imaginaries of people currently inhabiting rural spaces (Harvey 1996; Radcliffe 1999; Silk 1999).

Second, while ‘rural’ has been approached in functional terms –such as the practices carried out in the rural space; the term ‘agrarian’ makes reference to the historical context of land redistribution processes; often related to land reforms and re-distributions of land from the rich to the poor or landless (Govan 1964; de Janvry *et al.* 2001; Kay 2007; Kay *et al.* 2008; Borras and Franco 2010). Taking into account the historical processes of land reforms involves looking at the community within a wider political economy context (Sikor 2006). When looking at the historical context, this research acknowledges that access to natural resources is not static. Furthermore, the complex processes and relations of access to land-based resources are the result of dynamic interactions between different social actors that might change throughout the course of history (Blaikie 1985;

Berry 1989; Leach *et al.* 1999). A framework based on an agrarian community goes beyond the focus on practices and functions of rural spaces alone. Referring to agrarian communities implies engaging the analysis of the structural practices and values of individuals with the political and economic forces that shape their ability to obtain benefit from land-based resources. It also entails the analysis of the influence and intervention of external forces in the context of a multi-scale and historically bounded political economy.

Identity also plays an important role as to how social actors define themselves or others as different (Segovia 2002; Nuijten 2003b; Stanley 2009). Agrarian communities, are therefore, characterized by a series of overlapping identities. Hence, identity can differentiate households within the community according to specific attributes (gender, age, religious and political views, membership to groups within the community, etc.); however, it also can constitute the collective identity of the whole community, in the case study chosen, their identity as an indigenous group.

When it comes to the differentiation of identity within a community, individuals carry a number of social identities that influence what is possible for them to be or to do (Weisskoff 1980; Barrón-Pastor 2010). Hence, by differentiating specific household members by their gender, age, etc, other members of the community establish and acknowledge the set of benefits that they can access. The objective of this research is to highlight the role of these identities in how some households derive more benefits from resources based on the specific identities of their members, rather than explaining how those identities are formed, contested and related to other identities such as age or ethnicity.

The notion of identity as a shared characteristic of the whole community has been used by different politico-legal institutions to ‘separate’ a group of people or communities as *different* or with *special needs* from external groups of ‘outsiders’ (Apffel-Marglin and Parajuli 1998; Agrawal and Gibson 1999; Leach *et al.* 1999; Boege Schmidt 2008). The idea of being indigenous has also been used by agrarian communities to justify their claims over access to resources; some academics have also used this notion of identity to classify and differentiate

indigenous struggles and movements from other social movements, such as the notion of ‘ecological ethnicities’ or ethno-ecological movements (Apffel-Marglin and Parajuli 1998; Escobar 2001; Parajuli 2004).

Another example of the way identity can influence access is when at different organizational levels actors exert their privileged position to name, define and differentiate others (Barrón-Pastor 2010). For instance, while the State tends to define indigenous groups as backward, unproductive and ‘in need’, for rural indigenous communities a central issue that touches all other access strategies is the identity that is constructed around the idea of indigenous identity (Sandoval-Forero 2001; Martínez-Alier 2002; Segovia 2002). The State, NGOs and other external actors find in the definition of indigenous identities a pretext for defining policies and legal frameworks to show them the ‘right’ or ‘sustainable’ way of obtaining benefits from their land, setting them apart from the rest of the society (Escobar 2001; Parajuli 2004; Escobar 2008). However, local agrarian communities also use this notion of identity when claiming their rights as indigenous people to get differentiated access to natural resources within what is considered a traditional territory (Boege Schmidt 2008; Capistrano 2010). In the same way, within communities it may be possible to exclude other users from the benefits of specific resources based on identity claims.

2.4.2. Interpersonal relations

For the purpose of better understanding the social interactions surrounding access to land-based resources, interpersonal relations are defined as the intra- and inter-household interactions that individuals enact to obtain benefits from land-based resources. According to Ribot and Peluso (2003:172) “[...] friendship, trust, reciprocity, patronage, dependence and obligation form critical strands in access webs. Like identity, [interpersonal] relations are central to virtually all other elements of access”. Together with social identities, interpersonal relations shape the strategies individual households have to define the different ways of obtaining benefits from things within the community. Interpersonal relations are, in part, the very means by which households cooperate in groups and negotiate all kinds of means of production, as well as the basic organization to include or exclude others from obtaining benefits (Berry 1989; Bray *et al.* 2006).

This research looks at the way in which individual households use interpersonal relationships such as friendship, reciprocity, kinship, etc. as mechanisms for negotiating material and non-material benefits from resources. In that sense, whether or not household productive resources are individually owned, some households obtain benefits by relying on interpersonal relations (Berry 1989). In her work on Ghana, Berry highlights the importance of interpersonal relationships when stating that in a context of land reform, the landless could “[receive land] from a chief with whom they had family ties or personal connections; the rest had obtained permission from their relatives to build or plant on a portion of family land” (Berry 2009:1372). In the same way, the community can exert these personal connections to obtain benefits from external politico-legal institutions, for example, by facilitating bureaucratic procedures. In order to gain, maintain or control resources, interpersonal relationships form important networks on which the whole agrarian community relies to maximize their benefits.

2.4.3. Markets

When it comes to obtaining benefits from land-based resources, access to markets has been defined as “the ability of individuals or groups to gain, control or maintain entry into exchange relations” (Ribot and Peluso 2003:166). This definition is central to this research since it does not imply only commercial benefits, but also benefits in terms of interchange and cooperation for production. Access to markets is seen as a social relation that can be used by individual households to obtain benefits from resources by cooperating with others on the extraction and commercialization of valuable products. The ability to obtain commercial and non-commercial benefits from natural resources is ultimately shaped by each producer’s degree of access to markets⁸ (Berry 1989; Ribot 1998; de Janvry *et al.* 2001; Jepson *et al.* 2010). However, there are two issues that shape individuals’ ability to access markets: the value attached to products

⁸ Assessing access to markets may include other structures and practices such as access to capital, global prices and taxes; however, the analysis presented here is referred to as the exchange relations implemented by the agrarian community chosen as a case study to obtain differential access to resources. For instance, while some communities who settled in the national park in which the case study is located have participated in programmes of payment for environmental services, the case study has not been inserted into any carbon market. Wood and timber production has been allocated within the traditional markets for these goods.

obtained from the land, and the influence of external factors over the availability of markets and exchange relations.

The value of products is often allocated from external pricing entities (often State-based). For some highly valuable goods such as timber, and mining products, local users are constrained to national and even international standards and trends, that eventually shape the way in which local users produce or extract specific products (Trommetter 2005; Rabbi *et al.* 2010). In the context of globalization, some non-commercial products have been considered valuable only by local communities; this implies the creation of local markets that can be reduced to the community level, and that can be as important for the livelihoods of rural and indigenous peoples as the more commercial market-based production (Aggarwal 2006).

Market access is mediated by a wide array of structures and processes that can include access to technology, labour, capital, competition or cooperation with other market actors, and support by official policies and institutions by regulating prices and commercialization networks or the provision of licenses and permits (Ribot and Peluso 2003; Trommetter 2005). In order to better understand the political economy of access to resources, it is necessary to obtain information about the way social actors interact to create exchange relations, both within the community and between individual households and the external society. Markets surrounding products whose commercial potential is high have been assessed by the creation of commodity chains or commercial circuits. “A commodity chain is a series of interlinked exchanges through which a commodity and its constituents pass from extraction or harvesting through production to end use” (Ribot 1998:307-308). Studies of commodity chains are useful to understand the linkages between the producers of goods and external actors, and the way the benefits are distributed throughout the chain; however, this research acknowledges that there are many ways of gaining access to resources beyond the market (Leach *et al.* 1999).

2.4.4. Knowledge

Knowledge is a mechanism that plays a multiplicity of functions in the distribution of benefits from land-based resources. While knowledge can be considered as a set of individual skills that resource users have, knowledge is also embedded in the structure of the agrarian community, and is expressed in the way in which the whole community carry out productive activities based on shared knowledge. This knowledge is relative to climatic and seasonal characteristics that allow the agrarian community to produce goods, or to traditional calendars that regulate their productive activities.

Access to information and knowledge play an important role in providing different means by which both communities and individuals gain access to resources (Ribot 1998; Ribot and Peluso 2003; Trommetter 2005). Knowledge of the way in which the different religious, climatic and labour stages influence the availability of certain natural resources is central to the agrarian community's organization and the governance of local land-based resources. Knowledge over landed resources and the practices involved in obtaining benefits from them is central to constructing –and defending when necessary, claims over resources access-control (Ribot 1998; Ribot and Peluso 2003).

In combination with other mechanisms, knowledge can be used as a tool to maintain access to resources. Special attention is paid to the way knowledge is managed as a mechanism by which different actors obtain benefits not only from resources, but also from other resource users. For instance, some groups of villagers in East Africa have intricate and highly specialized knowledge to carry out mining activities (Berry 1989). This knowledge is acquired by training provided by the State through the Department of Mineral Resources; therefore, knowledge is not shared by all the community members; however, this group of villagers can decide who will learn the skills needed to obtain benefits, restricting those who lack the know-how from being employed by the mine. This example shows that knowledge needs a combination of other access mechanisms to derive benefits to their holders.

One of the characteristics of knowledge that makes it difficult to locate it as either a structural and relational access mechanism or as other productive resource is the

fact that knowledge can be also considered as a given; a fixed characteristic of the agrarian community that is developed across generations, and that entitles a wide array of strategies and resources (in which land-based resources is only one of them). On that case, knowledge could work as a resource that agrarian communities often use to challenge external ideas or attempts to modify their use of resources. When it comes to indigenous groups, tensions between traditional and modern knowledge raise questions regarding the integration of indigenous know-how with ‘scientific’ approaches to natural resource management (Fairhead and Leach 1996; Grim 2001; Borrini-Feyerabend *et al.* 2004; Capistrano 2010). On these conflicts, indigenous communities have found the means to express their claims in front of external bodies to justify their management of social and natural resources. Although references to these situations are made throughout the course of this thesis, this research focuses on the way in which knowledge is mingled in the social structure and customs of the case study; especially when it comes to activities and productive strategies based on land-based resources. Hence, knowledge is seen as a point of departure of specific actions shared by the whole community around access to land-based resources.

2.5. Control over Other Productive Resources

As mentioned elsewhere in this chapter, control over other productive resources beyond land-based is important for the analytical purposes of this research. Distinguishing other productive resources follows the lead of Sikor and Nguyen (2007) who designed a similar analysis for forest-based resources. Distinguishing households endowments associated with forest resources from their command over other non-forest productive resources responds to their interest in the analysis of the effects of forest devolution. For the case of land-based resources, financial capital, labour and technology are considered the productive resources beyond land-based that social actors control in order to shape both the distribution of benefits; access to land-based resources, and consequently, the mechanisms that allow households to derive these benefits.

Distinguishing control over other productive resources from access mechanisms regarding land-based resources allows the acknowledgement that households at the agrarian community do not entirely depend on activities based on landed

resources alone. Agrarian communities incorporate other strategies and productive resources to complement their livelihoods. Hence, households put in place a series of productive activities that not necessarily relate to local land-based resources (for instance migration or commercial businesses outside the community) in order to gain, maintain or control the flux of labour, technology and financial capital. Consequently, controlling other productive resources derived from non-land related activities shapes the distribution of access to local resources.

Hence, the distribution of benefits from land-based resources can be shaped by both the use of access mechanisms regarding land-based resources, and the differential control over other productive resources. According to Sikor and Nguyen, (2007:2012): “Local people are in different positions to turn forest endowments into entitlements, depending on the nature of local production systems and the institutions governing access to productive resources”. In other words, in some cases households derive larger entitlements because they possess the means to make better use of other productive resources (*Ibid*) as well as the means to make use of access mechanisms to their favour.

Control over other productive resources that local users have becomes the means by which different households can obtain larger entitlements, and consequently more benefits from land-based resources. There is a large literature dealing with how although having similar endowments, some local users benefit more from land-based resources (Ribot 1998; Martinez-Alier 2002; Maya *et al.* 2003; Thoms 2008; Wannasai and Shrestha 2008). The analysis of the extent in which control over other productive resources shape the distribution of access to land-based resources provides an explanation as to why some households are able to derive larger entitlements from land-based resources.

Given that this research considers an agrarian cycle as a particular interval of analysis, other productive resources are considered fixed during this period. However, it is a focus of attention to examine how access to land-based resources relates to income (produced from all sorts of sources including land-based resource activities) and wealth status (considering a wider set of factors). Given that income sources are dynamic and always changing across agricultural cycles

the relationship between income and access relates to short time periods. However, as mentioned previously, when aiming to capture longer-term effects between access and other productive resources, it is necessary to take into consideration wealth, since it includes a wide array of factors perceived by the members of the agrarian community as wealth status. Therefore, in order to be considered within each wealth status, households must fulfil the commonly agreed wealth status factors across longer periods of time. The following subsections explain the nature of other productive resources and their relation with access to land-based resources.

2.5.1. Financial Capital

One of the central productive resources when it comes to controlling and maintaining access to land based resources is financial capital. Relevant literature has focused on the way financial capital provides material assets that support rural livelihoods (Ellis 2000; de Janvry *et al.* 2001; Ellis and Bahiigwa 2003). Furthermore, financial capital has been considered by some assets-based approaches one of the factors that allow livelihoods to diversify, especially in agrarian communities with a wide array of natural resources available (Reddy *et al.* 2006; Mutenje *et al.* 2010).

For the purposes of this research, the analytical framework mainly focuses on the distribution of financial assets among households and the extent to which the distribution of financial capital shapes the distribution of access to land-based resources. Financial assets have been defined as the set of finances that can produce income (Sullivan and Sheffrin 2003). Among the types of financial assets it is possible to distinguish cash or cash equivalents (investments of businesses, and other sources of direct income such as remittances), and fixed financial assets (employment, renting out assets and other sources of non direct income). The possession of financial assets is a central feature for the identification of the different wealth positions held by households.

The remittances received by households from migrating members constitute the prime example about the extent in which financial assets available for households have close relation with the distribution of access to land-based resources.

Agrarian communities in rural Mexico in particular, and in Latin America in general, are facing increasing challenges when it comes to the profitability of agrarian activities. Migration and the consequent provision of remittances may be considered a prime source of financial assets in agrarian communities. This productive resource allows agrarian communities to keep their livelihoods even besides the low profitability of land-based activities. Hence, different households use remittances in diverse ways according to their internal structure and needs. The main analytical interest of this research regarding the distribution of financial assets, therefore, is the extent by which different households can use control over financial capital in different ways to shape access to land-based resources.

2.5.2. Labour

This research takes into account that access to labour shapes which households obtain benefits from resources, and furthermore, which members of the household benefit more from carrying out productive activities that might be complementary to their livelihood strategies. In that respect labour is the working force that individual households have –that might include “captive family labour such as children, elders, adult women and men at different life stages, etc” (de Janvry *et al.* 2001:5). The labour of a household encompasses the work that every individual member carries out and its relation to the availability of technological assets such as electricity, water supply, animal-drawn equipment etc. These activities are carried out within the land available for each household, from the agricultural plot to the community grazing and forest land. However, access to labour not only includes the ability to labour for oneself; it is also possible to maintain access to employment with other social actors from within and outside the community.

Labour opportunities (in the form of employment) complement household livelihoods by other means; such as finding extra-household remunerated activities by migrating or even by offering or receiving employment from members of other households. In other words, obtaining benefits from the labour of others. This division is shared by Ribot and Peluso (2003:167): “Labour scarcities and surpluses can affect the relative portion of resource benefits enjoyed by those who control labour, those who control access to labour opportunities, and those who desire to maintain their access to these opportunities”.

There is a close relationship between access to markets and access to labour opportunities. This is made clearer when producers are obligated to work and produce under a set of conditions that might be restricted by seasonality, availability of labour in the community and/or legal constraints (Peluso 1993; Madsen and Adriansen 2004; Barsimantov *et al.* 2011). From the case of charcoal production in Senegal, Ribot (1998) states that in order to maximize their benefits, charcoal merchants control access to labour opportunities through controlling quotas and permits for charcoal production. Charcoal producers are often obligated to sell their charcoal –or to work for a specific merchant. Hence, merchants are in the position of allocating labour opportunities in the form of employment and consequently the distribution of benefits from charcoal production. This example illustrates that access to labour has a close connection with external forces besides the market. Hence, other aspects such as legal restrictions, official permits and licenses, consuetudinary law and access to technology added to market dynamics shape the way in which the members of an agrarian community can look for external labour opportunities.

2.5.3. Technology

Obtaining benefits from land-based resources often depends on the role of technology. From many examples provided from West Africa, Berry (1989) shows that technology is central when agrarian communities aim at maximizing their agricultural production. For instance, while some households have a plough for agricultural purposes, other households without this technology could carry out the same agricultural activities but with more difficulty and varying costs. Hence, access to technology constitutes an important mechanism in shaping the ability of some households or individuals to maximize their benefits from land-based resources. This research characterizes the different forms of benefits that households obtain due to the way in which technology is accessed.

Although technology has been analysed in structural terms, specially within agrarian and indigenous communities (Boege Schmidt 2008; Lwoga *et al.* 2010); this research regards technology as a productive resource that can mediate the way an agrarian community relate to external organizations and politico-legal

institutions⁹. In that sense, the analytical framework regards technology as other productive resource that relates to a wide array of activities beyond access to land-based resources.

There is a wide literature dealing with how different extra-community social actors control who benefits from resources by introducing specific technologies that make communities dependent on external inputs. However, control over technology also can be a factor differentiating community members. This is the case for genetically modified crops that are provided by state-supported development programmes to increase agricultural productivity, but at the same time, communities become dependent on special pesticides and other inputs that are provided by these external agents (Benjamin 2008; Boege Schmidt 2008; Poteete and Ribot 2011). This use of technology as a resource for controlling access to land-based resources can also be extrapolated to within the communities. Some households or groups of them might be in possession of specific technological assets that facilitate reaching a resource physically (machinery, means of transportation, tools for production, etc). Other households might be forced to work with or for these households to ensure they gain some benefits from the resources that otherwise would be out of their reach.

Studies of rural livelihoods and access to natural resources highlight that in combination with other mechanisms; technology is central as a strategy to cope with natural and economic distress, while at the same time providing the opportunity to diversify household's livelihoods (Ellis 2000; Nygren and Rikoon 2008). Furthermore, the possession of specialized technologies represents an opportunity to control access to specific resources; including land-based resources (Ribot 1998). The ability to control who benefit from resources by controlling technology may create local elites or groups whose access is privileged in comparison to the rest of the community.

⁹ Traditional agriculture, grazing and forestry techniques, are also significant in terms of access to land-based resources, however, they are included in the structural and relational mechanisms, specifically related to knowledge, as shared not only by specific sectors or groups within the community, or individual households, but as a shared structure that dictates the way in which land is laboured.

2.6. Conclusion

This chapter comprises the theoretical and conceptual ideas that frame the analysis of access to land-based resources in this research. The analytical framework designed relies mainly on the access framework proposed by Ribot and Peluso (2003) and the environmental entitlements framework proposed by Leach *et al.* (1999). The analytical framework is composed by three categories that constitute the focus of analytical and empirical enquiry of this research. The main focus of attention and first analytical category is access to land based resources. The analytical framework identifies a series of access mechanisms regarding land-based resources that shape the distribution of material and non-material benefits from land-based resources. It classifies them into two categories referred to as rights-based and structural and relational mechanisms. These mechanisms and their influence over access to land-based resources represent the second analytical category of the framework proposed. The last category deals with control over other productive resources. These other productive resources, together with the access mechanisms are instrumental for shaping how social actors obtain benefits from land-based resources, even though these productive resources are considered exogenous to the analysis of land-based resources themselves.

One of the main characteristics of the analytical framework proposed here is its sensitivity to context. This may be considered as a limitation given its restricted potential for extrapolating it into different contexts. However, as it was stated throughout this chapter, this extended access framework provides a starting point when it comes to understanding the way in which local users obtain benefits from land-based resources on a specific context. Hence, the analytical framework was designed to highlight that on any effort for understanding access to resources, it is necessary to take into account the particularities of any given agrarian community and the type of resources subject to enquiry. Hence, due to the wide diversity of resources available, different agrarian communities put in place different mechanisms through which their members can appropriate, maintain and control access.

When it comes to the category of access mechanisms regarding land-based resources, the first category is defined as rights-based. Property relations as well as the means of legal and illegal access mainly constitute this classification of access mechanisms. The analytical framework proposed goes beyond the notion of property as the central issue that frames access. Instead this research sees property as only one mechanism among others that are equally important in accessing land-based resources. In other words, by using property as a mechanism of a wider theoretical framework represented by access, it is possible to address land-based policies that have traditionally inhibit diversity, rather than facilitating and even supporting other strategies of access (Ellis 2000).

The second classification of access mechanisms regarding land-based resources corresponds to the structural and relational mechanisms shared across households of the agrarian community. The analytical framework designed aims to illustrate empirically the way in which identity, interpersonal relations, markets and knowledge shape access to land-based resources available for the agrarian community chosen as a case study.

These mechanisms are rooted in shared structures of the whole community; bounded by the relationships in which different households cluster themselves to maximize their benefits from landed resources. The classification of structural and relational access mechanisms allows an empirical analysis not only about the way in which different households are related and coordinated to participate in land-based activities, but also provides insights about the internal structure of the agrarian community. Furthermore, structural and relational mechanisms also mediate the different ways in which the community relates and interacts with external social actors.

Control over other productive resources constitutes the third element of the analytical framework designed for this research. It is argued that access mechanisms together with control over other productive resources determine the distribution of benefits from land-based resources. Other productive resources can be obtained from a wide variety of livelihood strategies not necessarily related to land-based resources.

The analytical design of this research aims to provide a framework to better understand the distribution of benefits derived from the use of land-based resources. Access, therefore, constitutes itself as the ability to derive benefits from land-based resources. The analytical framework provided also aims to address the conflicts originated from the different forces enacted by a wide range of social actors (both from within and outside the agrarian community) when it comes to controlling, managing and appropriating local land-based resources.

CHAPTER 3. RESEARCH STRATEGY: APPROACHES AND METHODS

3.1. Introduction

The previous chapter provides an analytical framework for understanding access to land-based resources. It conceptualises the different categories of access mechanisms put in place by social actors to obtain benefits from land-based resources. The access framework establishes two categories of access mechanisms: rights-based and structural and relational. While property and property relations mainly frame the former, the latter includes a series of mechanisms that are used by social actors to benefit from resources. Property is therefore framed as one mechanism among others that frame access to land-based resources.

In order to achieve a better understanding of the distribution of benefits from land-based resources it is necessary to look at the way in which social actors control other productive resources beyond these resources. The access framework helps to understand the way in which social actors benefit from land-based resources. Furthermore, it allows an analysis of the implications that external interventions (such as land reforms and the consequent implementation of development and conservation policies) have over the distribution of benefits from land-based resources.

This chapter presents the overall research strategy and research methods. Section 3.2 deals with the methodological issues that arise from research based on a case study and the particularities and background of the agrarian community chosen. Section 3.3 outlines a research strategy based on the combination of qualitative and quantitative methods. The last section includes the final methodological remarks and conclusions.

3.2. Case Study as a Research Approach.

The research is based on the analytical and empirical analysis of a case study. A 'case' refers to an individual, several individuals (as in multiple-case studies), an event or an entity (Miller and Brewer 2003; Simon 2008; Yin 2009). A case study is defined as “an empirical inquiry that investigates a contemporary phenomenon within its real-life context when the boundaries between phenomenon and context are not clearly evident, and in which multiple sources of evidence are used” (Yin 2009:23).

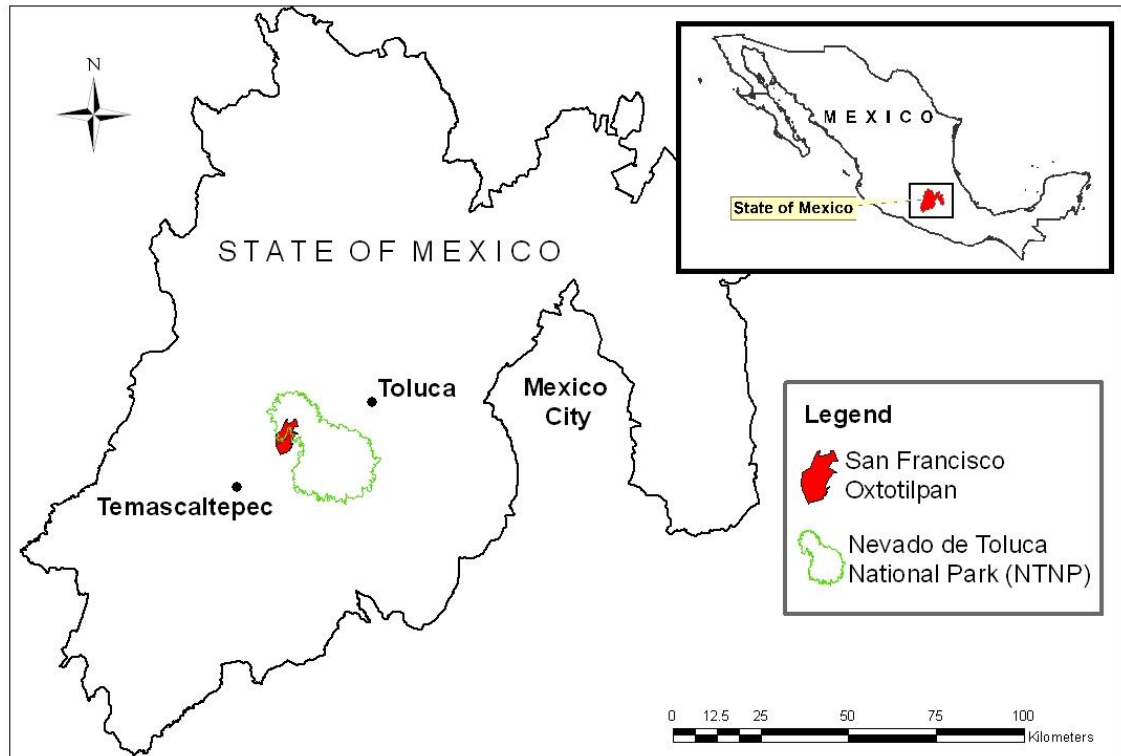
In adopting a case study approach, this research acknowledges that the findings are sensitive to context and attempts at generalization need to take into consideration the particularities of the case. As stated by Madsen and Adriansen (2003:490): “[in large-scale statistical studies] validity is translated into probability, which is useful for describing the distribution of a process, but not for understanding the causal relations”. While studies based on large-scale surveys aim at statistical generalization, case studies rely on analytical generalization, which is generalization to theory. According to Miller and Brewer (2003:23), “Generalization is based on repeated observation and, like a single experiment, one case study provides an observation that can be generalised to a general theory, particularly when considered in concert with the results from other studies”. Furthermore, “case studies continue to provide some of the most interesting and inspiring research in the social sciences” (*Ibid*: 24). Case studies are therefore designed to achieve a better understanding of selected social factors or processes within a real-life context, providing explanations and ideas that can be more prevailing and accurate, and whose results go beyond the descriptive 'how' to the more empirically explanatory 'why' (Hakim 2000; Denscombe 2002; Denscombe 2003).

This research uses a multi-methods approach to analyse the three selected dimensions of the case study: first, the case study as a geographical setting –San Francisco Oxtotilpan; second, the case study as a social entity –the *Matlatzinca* indigenous group; and third, the case study as a conjunction of research units – households. Classifying the analysis of the case study selected into these dimensions, illustrates specific aspects of access to land-based resources in the

context of land reform in Mexico. The following subsections describe in more detail the three dimensions of the case study selected.

3.2.1. San Francisco Oxtotilpan

There is a vast literature dealing with the way to which the physical land use and the practices and values of individual actors influence access to resources in Mexico's rural sector (Nuijten 2003a). When it comes to the use of rural space, Mexico has provided important insights about the practices and values of local users related with natural resource access. The enormous variability of physiographical conditions makes rural Mexico one of the mega diverse countries not only in terms of natural resource availability, but also in terms of the social practices around them. To better understand access to land-based resources in the context of land reform, it was necessary to select a case study with a wide range of resources and with complex organizational patterns. The village of San Francisco Oxtotilpan was selected as a case study due to its special features that constitute it as an illustrative example of the different effects that land policies have had on local users' access to resources. The following map shows its location:

Map 3.1. Location of San Francisco Oxtotilpan

Source: Self-elaboration.

San Francisco Oxtotilpan is located in Mexico's central highlands (Map 3.1). The northern part of the village is located within the boundaries of the fourth highest volcano of Mexico (4600m), the Nevado de Toluca or Xinantecatl National Park (NTNP)¹⁰. The boundary of the NTNP corresponds to the 3000 m.s.l. elevation contour, surrounding an area of 51000 Ha (Franco Maass *et al.* 2008). The National Park has been considered a natural heritage of central Mexico due to its environmental functions including carbon sequestration, climatic and hydrological regulation of the Valley of Toluca region and as one of the most important collectors of fresh water for Toluca and Mexico City (Franco Maass *et al.* 2006; Rojas Merced *et al.* 2007; Franco Maass *et al.* 2008).

When it comes to land-based resources, rural Mexico presents a complex situation. Previous to the 1990s land reforms, over 55% of arable land was concentrated in

¹⁰ The Nevado de Toluca was established in 1936 as a National Park (Franco Maass *et al.* 2006). According to figures from the National Agrarian Registry the boundaries of the community were officially recognized in 1935 for the *Ejido* land and in 1956 for the *Tierras Comunes*. This implies that the establishment of the NTNP did not have any effect on the official recognition of the village boundaries. The interests from the State to conserve and protect this national park on one hand, and the community's need for accessing the land-based resources available have been the root for many of the current conflicts that this thesis addresses in the forthcoming chapters.

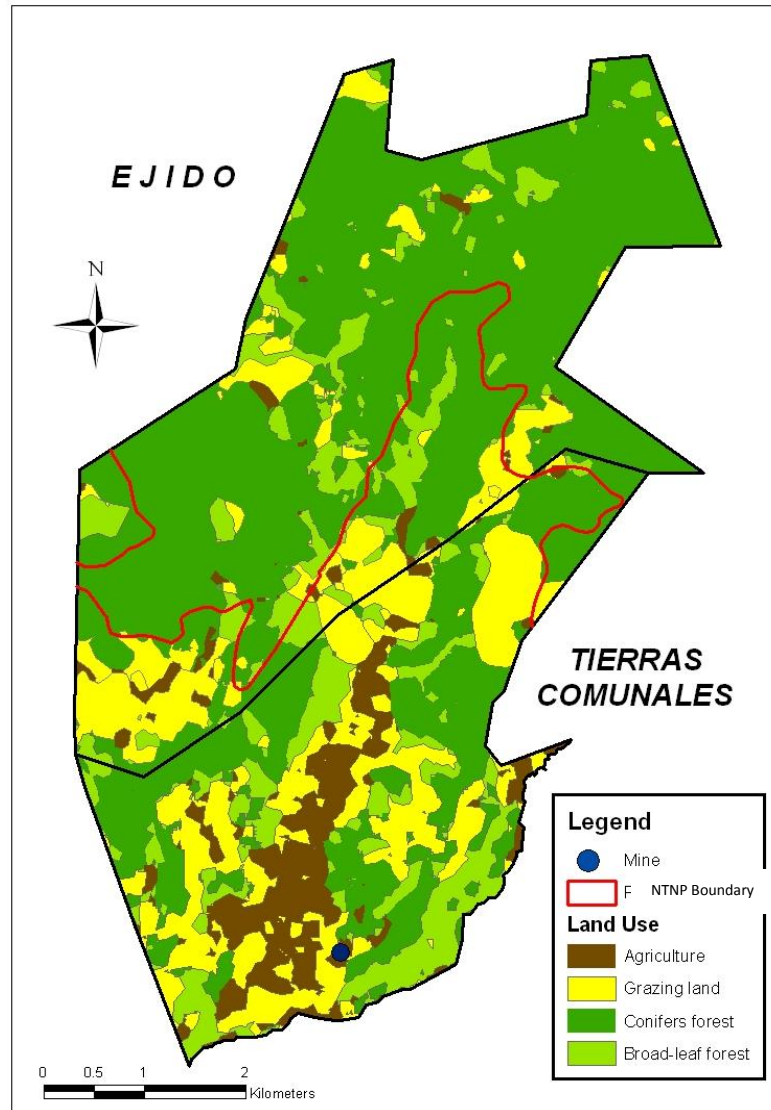
almost 3000 *Ejido* communities (Jones and Ward 1998) as well as 70% of its forest cover (Klooster and Masera 2000)¹¹. Although the majority of *Ejido* lands were held as commons (75%), almost 85% of Ejidatarios had access to individual plots with an average of 9.5 hectares per household (Thompson and Wilson 1994)¹².

The case of San Francisco Oxtotilpan is relevant because during the twentieth century the community decided to split the village into two separate sections: The *Ejido* and *Tierras Comunales*. Each one of these divisions has a communally managed area that corresponds to forest and grazing land. As illustrated in Map 3.2, the geographical distribution of land-based resources has created practices that allow villagers to obtain benefits from different resources available.

¹¹ *Ejido* has been used to refer all villages in the rural context of Mexico who hold communally managed agricultural land. For the purposes of the research, and since the case study is divided in two sections, *Ejido* will be used to refer to the northern part of the community, while *Tierras Comunales* will address the southern section (See Map 3.2).

¹² For the analysis of the particular situation of agricultural plots in the case study selected, refer to Chapter 5.

Map 3.2. Distribution of land-based resources in San Francisco Oxtotilpan



Source: Self elaboration based on fieldwork control points (GPS) and LandSat satellite image from 2009.

As illustrated by Map 3.2, forest is the largest land-use category in the community (almost 85%)¹³. It is important to mention that human settlements are concentrated in the *Tierras Comunales* area; hence, while the more rugged geomorphology of the *Ejido* land implies less potential for agricultural purposes, *Tierras Comunales* concentrates both human settlements and agricultural activities in a larger proportion. *Ejido* land, on the other hand, has a larger forest reserve than the one included in *Tierras Comunales*. The case of grazing land is special due to its origin. While the grazing land in *Ejido* is mainly land that has

¹³ Data obtained from direct measurements from Map 3.2.

been cleared from the remaining forest in supervised logging programmes, the grazing land in *Tierras Comunales* is a combination of both, cleared land, and agricultural plots that are often left uncultivated by several years and are used by the whole community for grazing but can be used at any agricultural cycle for cultivation. Since the boundaries of the Nevado de Toluca National Park (NTNP) are mainly within the *Ejido* area, no other extractive activities are allowed there but supervised loggings. Within *Tierras Comunales* there is a mine where construction materials are extracted.

Map 3.2 illustrates that a wider set of practices and economic activities are carried out on *Tierras Comunales*, rather than on *Ejido* land. Human settlements as well as other activities such as the mine and the more intensive agriculture imply a bigger pressure over the natural resources available. It is the aim of this thesis to dismantle the networks of access to these resources by the local users and the extent by which external processes such as land reform may have modified not only the local administration of resources, but also the political and social networks of the community members.

3.2.2. The Matlatzinca Indigenous Group.

Recent literature about the situation of land-based resources in Mexico has shown that natural resources within indigenous management systems have important variations compared with those in non-indigenous rural sectors (Harris and Weiner 1998; Toledo 2002; Toledo *et al.* 2003; Bocco *et al.* 2005; Boege Schmidt 2008). While some approaches dismiss indigenous strategies of use and management of land-based resources as less productive and wasteful systems, other studies highlight the importance of practices based on indigenous traditional knowledge in agro-ecological conservation. In general terms studies about the role of indigenous organizations when it comes to land-based resources have been mainly centred on cultivation systems; overlooking other land-based resources such as forest and grazing land that are less related with agricultural activities (Thoms and Betters 1998; Toledo *et al.* 2003).

According to Boege Schmidt (2008), indigenous groups in Mexico have complex and deeply culturally rooted practices that include all sorts of natural resources

available. Such practices provide valuable insights about traditional conservation of resources. For instance, in Mexico nearly 80% of forest is located on rural indigenous communities with different degrees of marginality (Harris and Weiner 1998; Bocco *et al.* 2005). The importance of working with indigenous groups in Mexico lies in both their high natural resource availability and their historical marginalization and disadvantageous position when it comes to the implementation of resource-based policies.

The *Matlatzinca* indigenous group was chosen as a case study following these criteria. As Shown in Map 3.2, *Matlatzincas* have a large territory in which all their cultural and organizational practices are carried out; however, there is little information available about the way in which this indigenous group is organized regarding natural resource management. Furthermore, the *Matlatzinca* share several problems that other indigenous groups face in Mexico. They have been one of the most affected by loss of traditions and other cultural features such as the language (Garcia-Hernandez 2004). The *Matlatzinca* is the smallest indigenous group in the State of Mexico province, even though before the arrival of the Spanish conquerors they used to be the biggest and more geographically spread. Currently, the last group of approximately 1500 *Matlatzincas* is concentrated in the town of San Francisco Oxtotilpan.

Given that a ‘case’ must be representative or share specific qualities and characteristics of the population universe to whom it belongs (Hakim 2000; Hollway and Jefferson 2000), it is necessary to identify the way in which the *Matlatzinca* indigenous group is merged and interlinked with the general discourse regarding the relation between Mexican indigenous peoples and land reform. The first point of recognition of the *Matlatzinca* group as a valid case study responds to the fact that it shares cultural, traditional and social features with other Mexican indigenous groups. However, although certain identification with national indigenous movements, the leaders of the *Matlatzinca* group still present a close relation with official politico-legal institutions. Thus, the *Matlatzinca* group is a relevant example of a community that have their own unique history, territory and cultural traits; however, they are also connected to the State and other global cultures and indigenous histories. They receive and

reflect wider influences, but mediated by their own histories and spaces. These features make the *Matlatzinca* a significant and representative example that illustrates the intricate networks of access to land-based resources.

One of the main features of the *Matlatzinca* indigenous group is their migratory pattern. Studies suggest that migration constitutes a strategy that has often turned into the main activity in which rural communities across Mexico rely to subsist (Mutersbaugh 2002). As it will be mentioned in the forthcoming chapters, the majority of households in San Francisco Oxtotilpan have members with permanent, seasonal and/or periodical migration. The heavy reliance on the remittances provided by the migrating family members constitutes an important source of income and financial assets beyond activities based on land. Moreover, migration has become an activity by which the members of the agrarian community relate with external social actors, shaping the internal organization of the agrarian community on the one hand, and the distribution of benefits from land-based resources on the other. Migration is a factor with important consequences when dealing with external interventions, especially with land reform processes. As it will be analysed in this thesis, the early 1990s' land reform has deep implications on the migratory patterns of the members of San Francisco Oxtotilpan and consequently, over their livelihood strategies and access to land-based resources.

3.2.3. Household as research unit.

In order to better understand the relations of access at the local level, parts of the analysis are based on the household as the basic research unit. Defining a research unit is vital for studies that aim at drawing lessons from multi-methods approaches (Madsen and Adriansen 2004; Meinzen-Dick *et al.* 2004). For studies on social sciences such as Geography or Anthropology where individuals or communities are often taken as research units, household analyses have demonstrated being a valuable source for advancing empirical knowledge (Gravlee *et al.* 2009). Furthermore, when it comes to the analysis of relations and networks within productive practices around natural resource management, households can provide important insights without focusing on individual users. One of the more common characteristics of qualitative research based on

individual actors is their focus on personal beliefs and attitudes, while household or communities studies need to address these individual factors as well as the shared practices and values that characterize the interaction within a community and with external actors (Meinzen-Dick *et al.* 2004; Silverman 2006; Ries 2008).

The household has been chosen as the unit of analysis for this research. Latin American literature dealing with agrarian issues often uses the term household as synonymous of family. However, it is necessary to make a distinction between *family* and *household* for the analysis proposed. Family has been defined as “All related members sharing the same dwelling unit” (Smeeding and Weinberg, 2001:2), while households are taken as “all members, related or unrelated, who share the same dwelling unit” (*Ibid:* 2). Family dynamics in San Francisco Oxtotilpan define, under these terms, the household structure. Furthermore, the location of each household responds to the natural resources that historically have been available for each one of them. Agricultural plots, water sources and irrigation channels, forest, and roads, are some of the geographical traits *Matlatzincas* take into account for settling down. The convergence of family dynamics and geographical traits not only shape the household structure, but also differentiate and position them among the rest of households in terms of access to natural resources, wealth, income generation, etc.

A final reason for choosing household as a research unit responds to the need to assess the effects of the land reform process in Mexico. Studies about land reform have demonstrated that indigenous rural households have received their effects on a wide array of factors ranging from the modification of the internal household structure and family relations, to the administration of land-based resources and the way individual households relate to others when it comes to access to natural resources (Kay 1997; Jones and Ward 1998; Thoms and Betters 1998; Piñar 2001; Medina-Ciriaco 2006; Boege Schmidt 2008). Similar studies have demonstrated that analysis at the household level provide important empirical insights that allow a better understanding of the processes around access to resources in agrarian communities.

3.3. Qualitative and Quantitative Data Collection.

Combining successfully qualitative and quantitative data has become the main challenge for multi- and inter-disciplinary researches, especially in social sciences such as Development Studies or Geography (Hakim 2000; Miller and Brewer 2003; Madsen and Adriansen 2004). This research employs both quantitative methods –mainly the implementation of a survey questionnaire, with qualitative and participatory research tools¹⁴. The purpose of adopting a multi-methods approach is based on the need for understanding, rather than measuring the causal relations between land reform and access to natural resources. A multi-methods approach is useful for unveiling and illustrating the complex relations around local access to land-based resources.

As stated in Chapter 2, access to natural resources involves a wide array of social actors and stakeholders that participate in the distribution of benefits. When it comes to the analysis of activities regarding land-based resources in Mexico it was necessary to consider the viewpoints and actions of the stakeholders and social actors involved. Furthermore, in order to achieve a more accurate understanding of the implications of the land reform in Mexico and the implementation of land policies over access to land-based resources, it was necessary to identify key informants that could provide the means for approaching not only social actors at all administrative levels (federal, state, municipal and community) but also on a wide array of issues that required both qualitative and quantitative insights. Table 3.1 shows the selection of respondents according to their relation with the variables included in the research questions designed.

¹⁴ The particular methods used in this research are explained in sections 3.4 (qualitative) and 3.5 (quantitative). For a complete list of the PRA methods, see Ellis *et al*, 2001 and Chambers, 2007.

Table 3.1 Research questions and selection of respondents.

Research Question	Research Variables	Selection of respondents	Government agencies involved
<i>1. How has the Mexican State implemented land reform and land-based resources policies and what are the responses of agrarian communities in Mexico?</i>	Land reform	Government agencies <i>Ejidatarios, Comuneros, Posesionarios</i> and <i>Avecindados</i> Community's authorities	SRA RAN CORETT PROCEDE PROCAMPO
	Land policies	Government agencies Government officials Community's authorities Smallholders and villagers	SEMARNAT CONAFOR CONAGUA
<i>2. How and why has the introduction of land reform-related policies modified agrarian communities' ability to obtain benefits from land-based resources?</i>	Ability to obtain benefits (access)	Government agencies <i>Ejido and Tierras Comunales'</i> authorities Households heads Migrating community members Extra-community stakeholders	SEDESOL CDI CEDIPIEM CONAFOR SEMARNAT
	Land-based resources	<i>Ejidatarios, Comuneros, Posesionarios</i> and <i>Avecindados</i> Villagers	SEDESOL
	Other productive resources	<i>Ejidatarios, Comuneros, Posesionarios</i> and <i>Avecindados</i> Villagers Extra-community stakeholders	SEDESOL CEDIPIEM
<i>3. How and why different mechanisms of access shape the distribution of benefits from land-based resources?</i>	Mechanisms of access	Households	SRA RAN PROCEDE

Key informants involved in the design and implementation of land reform and land policies from the different government agencies were interviewed during the fieldwork. Due to the difficulty on setting up meetings with policy makers and government agencies' representatives as well as identifying other respondents, snowballing was important for obtaining resources and further information and interviews at the different government agencies involved. The use of semi-structured interviews was the main research technique applied with government agencies and representatives. The insights provided by these interviews were

essential for complementing the secondary data about research variables such as land reform and the design and implementation of land policies.

Community-based fieldwork activities were carried out during 10 months (October 2008-July 2009). The original strategy for accessing the community was to introduce myself with the local authorities. Given the collaboration with the Autonomous University of the State of Mexico (UAEM), the community's leaders accepted me into the village to the extent that in one of the general community assemblies they allowed me to introduce myself and explain briefly the aim of the research and to make the community aware of my presence. Even though access to the community was achieved after several visits, I was still identified as an outsider. Distrust and lack of familiarity was evident during the first weeks spent on the research site; this situation implied a difficulty when trying to obtain critical information about access to land-based resources from the agrarian community.

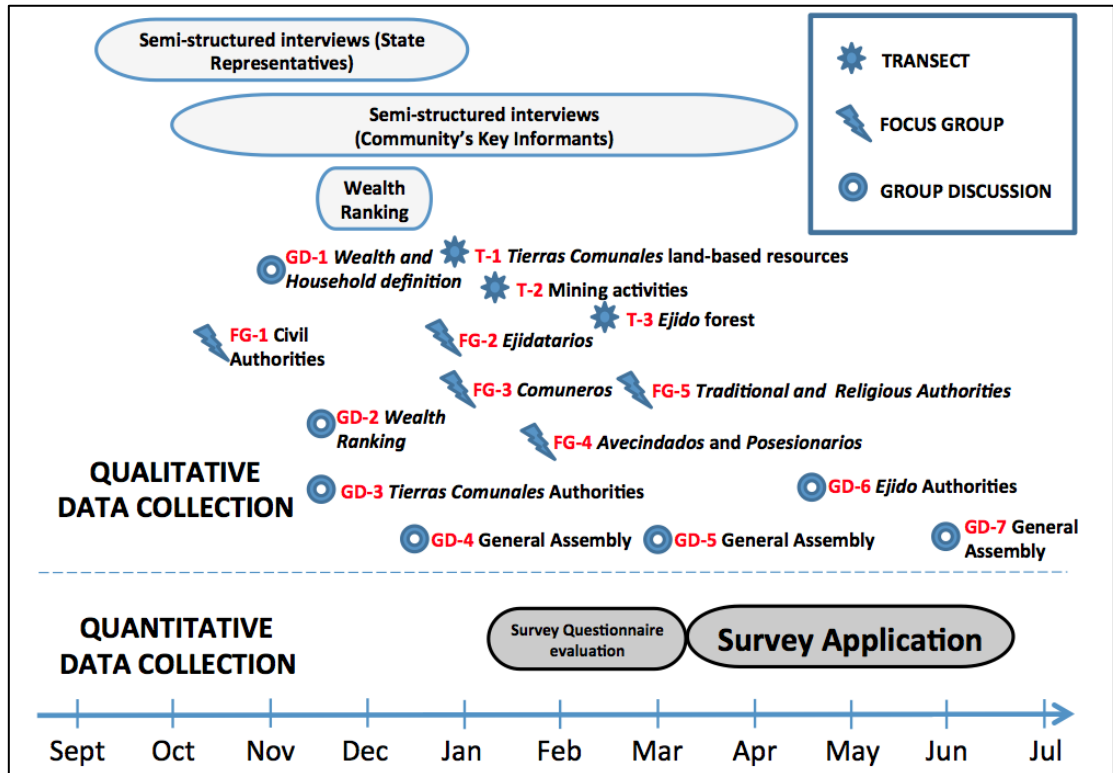
Being offered a place to stay in a room available for the teachers of the local primary school, I soon realized the school did not have a fourth grade teacher. I offered to act as a substitute teacher until the actual teacher arrived. Once the actual teacher arrived to the primary school, I kept in close contact with the primary school by giving English classes for the last grade students as preparation for their examination to get into the secondary school. During the two months as a substitute teacher and during the rest of the year giving English lessons, my positionality as an outsider researcher changed dramatically. Key informants that previously showed indifference and lack of cooperation, started to play a more active role in facilitating information and participating on the group discussions and focus groups. Although snowballing kept being important to select specific respondents, community members in general were cooperative and helpful; a change that was rapidly noticed in the quality of information collected.

In terms of research ethics, although there was familiarity with me as a researcher, before the application of any given research technique, the participants were informed about the general objectives of the research as well as the specific aims of the research technique to be applied. It was clearly stated that the management

of information would remain anonymous during all the process of data analysis, interpretation and writing up of results, and that it was for the exclusive use of the study within the boundaries of the research design. During the months of community-based fieldwork, I did not raise expectations related with the research objectives. During any interaction with community members, it was made explicit that the aims of the research were not intended to change in any way either internal aspects of the community, or its relation with external entities (mainly government agencies). The classes provided for the students of the primary school were the only contribution that I left to the community as a gesture of reciprocity and gratitude.

Obtaining complementary information about access to resources and the productive strategies of the villagers required the elicitation of quantitative data based on the design and implementation of a survey questionnaire. Considering that eliciting quantitative data at the household level could be sensitive to the respondents, the survey questionnaire was applied at the later stages of fieldwork. The trust and familiarity earned during the first months of fieldwork, allowed a more reliable and meaningful elicitation of qualitative data at the community level, while the most sensitive and specific quantitative household data was collected in the last stages of fieldwork. The combined analysis of both qualitative and quantitative data implied the use of a wide array of research techniques aiming to collect data from different sources and respondents. Figure 3.1 shows the fieldwork stages and research techniques applied.

Figure 3.1. Fieldwork and research techniques applied



Source: Self-elaboration based on the research techniques applied during the fieldwork stage (Sept. 2008-Jul.2009)

As shown in Figure 3.1, a combination of methodological tools was required to obtain information about the variables included in the research questions (See table 3.1). Hence, more general insights about the implementation of land reform and land policies were achieved through semi-structured interviews with State representatives and government agencies –research question 1. Data regarding access to land-based resources and control over other productive resources at the community level was achieved through a combination of participatory strategies (transects, focus groups and discussions) –research question 2; and insights about access mechanisms at the household level were obtained by the application of a survey questionnaire at the later stages of fieldwork –research question 3.

According to Simon (2008:705), “the combination [of methodological tools] can be complementary in the sense of facilitating a wider range of data analysis strategies, helping to integrate different scales of analysis more effectively and to facilitate critical examination of some of the implicit assumptions of the policies around natural resource management”. Moreover, other dimensions of specific research issues that are not well captured with certain empirical methods (such as

surveys and other quantitative techniques) need to be triangulated with discursive methods, in order to add validity to the analysis.

Accordingly, the methodology relies on triangulation not to double-check the data gathered, but to add validity and deepness to the analysis of information and to link both the qualitative analysis and the quantitative description, always in harmony with the analytical framework defined. Table 3.2 summarises the links between the analytical categories of the research (as defined in Chapter 2), and the variables and type of data required for achieving the empirical analysis proposed. It also provides the indicators of each concept included in the analytical framework. These indicators are the measures by which each concept was empirically analysed.

Table 3.2 Linking analytical framework and methodology

Analytical Categories	Key Concepts	Indicators	Type of Data	Research Methods	Chapter
Access to land-based resources	Distribution of material and non-material benefits	Productive activities in land-based resources	Q2	-Survey questionnaire	7,8
		Distribution of land based resources	Q1	-Transects	5
		Area cultivated by crop	Q2	-Survey questionnaire	5
		Use of forest products	Q2	-Survey questionnaire	6
		Perception of farming as a profitable activity	Q2	-Survey questionnaire	7
		Income from land-based resources	Q2	-Survey questionnaire	6
		Income from communal land resource use	Q2	-Survey questionnaire	7
Rights-based mechanisms	Property	Land distribution among households	Q1	-Focus groups -Key informant interviews	5,6,7
		Income distribution by council membership	Q2	-Survey questionnaire	5
	Property rights	Household's head council membership	Q2	-Survey questionnaire	5,6
		Land transactions	Q2	-Survey questionnaire	5
	Authority	Problem solving	Q1	-Semi-structured interviews -Group discussions	4,5
		<i>Sistema de Cargos Matlatzinca</i>	Q1	-Group discussions -Semi-structured interviews	5
Structural and relational mechanisms	Identity	Identity as an indigenous group	Q1	-Key informant interviews	6
		Age and sex of households' heads	Q2	-Survey questionnaire	6
		Membership of households according to sex	Q2	-Survey questionnaire	6
	Interpersonal relations	Access to agricultural plots	Q2	-Survey questionnaire	6
		Division of agricultural labour	Q2	-Survey questionnaire	6
	Markets	Commercialization of land-based products	Q1	-Group discussion -Focus groups	6
	Knowledge	Climatic, agricultural and religious calendar	Q1	-Key informant interviews	6

Analytical Categories	Key Concepts	Indicators	Type of Data	Research Methods	Chapter
Control over other productive resources	Financial capital	Remittances	Q2	-Survey questionnaire	7
		Financial assets (infrastructure, machinery)	Q1	-Group discussions	7
		Destination of migrating members	Q2	-Survey questionnaire	7
		Activities carried out by migrants	Q2	-Survey questionnaire	7
		Total income distribution	Q2	-Survey questionnaire	7
		Non-agricultural income sources	Q2	-Survey questionnaire	7
		Livestock activities	Q2	-Survey questionnaire	7
	Labour	Households head main occupation	Q2	-Survey questionnaire	7
		Type of labour available	Q1	-Focus groups	6,7
		Extra- community labour opportunities	Q1	-Key informant interviews	6,7
	Technology	Distribution of agricultural land according to irrigation condition	Q2	-Survey questionnaire	7
		Technology available for each activity	Q1	-Transects	5,6,7
		Distribution of technological assets	Q1	-Focus groups	6,7
		Provision of technology as development aid	Q1	-Transects Group discussions	5,7
	Wealth	Distribution of HH wealth	Q2	-Participatory wealth ranking exercise	7
Distribution of wealth by sex		Q2	-Participatory wealth ranking exercise	7	
Wealth ranking by council membership		Q2	-Participatory wealth ranking exercise	5	
Distribution of income sources by wealth ranking		Q2	-Participatory wealth ranking exercise -Survey	7	
Income distribution by wealth ranking		Q2	-Participatory wealth ranking exercise -Survey	7	
Non-farm income distribution by wealth ranking		Q2	-Participatory wealth ranking exercise -Survey	7	
Q1 – qualitative data Q2 – quantitative data					
Source: Self elaboration					

The main aim of Table 3.2 is to connect the conceptual discussion of access included in the analytical framework in Chapter 2 with the empirical analysis of the following chapters. The analysis of specific indicators frames each analytical category, and furthermore, it has a close relation with the variables expressed in the research questions (See Table 3.1). Some indicators provide insights that are relevant for the analysis included in different chapters. This situation responds to the structure of the thesis, which follows the order of the analytical framework proposed rather than devoting each empirical chapter to an individual research question. In order to answer the research questions in a more holistic way, the analysis of some indicators is triangulated to provide complementary insights about the analytical categories designed. The following subsections describe more in detail each research technique applied and the relevance for the study of access to land-based resources in the context of land reform in Mexico.

3.4. Qualitative Data Collection

The methodological approach adopted by this research to study access to land-based resources is focused on actors' ability to benefit from things. This makes it necessary to illustrate the values and practices that individual actors (households, individual users, groups within the community as well as state representatives and institutions) put in practice to benefit from things. In order to achieve a better understanding of individual actors' ability to benefit from things, the data collection was divided in two stages, a qualitative (aiming to obtain information from the case study selected as well as external actors from the State) and a quantitative stage (devoted mainly to obtain information about income and wealth from individual households).

When it comes to the qualitative stage of the fieldwork, a series of research techniques were carried out with key informants at different organizational levels. A first step in the application of these research techniques was to identify key informants on State agencies and stakeholders at the agrarian community. Snowball sampling was used to identify and select these individuals, government representatives and stakeholders as participants of the different qualitative research techniques applied; however, respondents were selected taking into consideration three criteria closely linked with the variables included in the

research questions (see Table 3.1): a) When it comes to land reform and land policies design and implementation, respondents had to be knowledgeable and active in the design or implementation of relevant policies. b) Extra-community respondents should have experience in the case study. This was the case of government representatives from local and regional agencies. c) In the case of community-based participants, individuals had to be reliable members of the community involved in a variety of land-based activities. Their political involvement was required for specific activities such as focus groups and semi-structured interviews. Once selected the respondents and participants according to the objectives of each method applied, a series of research techniques were designed to obtain the indicators that would consequently illustrate empirically each analytical category and key concepts (see Table 3.2). This combination of research techniques included semi-structured interviews, focus groups, group discussions and Participatory Research Approach (PRA) methods such as transects, and the implementation of a participatory wealth ranking exercise that resulted essential for the analysis of households as units of analysis. The next subsections explain the way in which each research technique was designed and applied, as well as the way in which the data obtained was analysed.

3.4.1. Semi-structured Interviews

The empirical analysis of access and the socio-political and economic context of the case study selected required the investigation of a wide array of issues that involved actors at different organizational levels. Semi-structured interviews were used to obtain important information from all these organizational levels, especially in the early stages of fieldwork when it was important to establish relations with key informants both at external institutions and at the community level. One of the strengths of semi-structured interviews is that it focuses directly on the relevant topics of the case study, while providing insightful causal inferences and explanations from the respondents' points of view (Yin 2009; Fisher *et al.* 2010). Furthermore, semi-structured interviews provide a clearer idea about how research participants perceive the world, the problems inherent to the research topic and their role within (Bryman 2008).

Together with the first approaches to the community, appointments and meetings to apply semi-structured interviews to representatives of relevant State institutions were made in Toluca and Mexico City. The aims of these visits were to obtain secondary information and identify subsequent informants from such official institutions. The first institution visited was the regional office of the National Agrarian Registry (*RAN – Registro Agrario Nacional*), in charge of the establishment of the PROCEDE programme. Other institutions that were included were the Commission for National Land Tenure Regularization (*CORETT – Comision para la Regulacion de la Tenencia de la Tierra*), Ministry of Agriculture, Livestock, Rural Development, Fisheries and Food (*SAGARPA – Secretaria de Agricultura, Ganaderia, Desarrollo Rural, Pesca y Alimentacion*), The national and regional branches of the National Commission for Indigenous Peoples' Development (*CDI – Comision Nacional para el Desarrollo de Pueblos Indigenas*) and the Ministry of Social Development (*SEDESOL – Secretaria de Desarrollo Social*); as well as the different institutions of State government at national, regional, state and municipality levels.

The interviews followed a previously designed list of topics to be discussed by the informant. This allowed exploring issues that were not considered originally in the interview guide. For the case of semi-structured interviews carried out with government officials, the discussion was centred on their field of action, the extent in which they participated in the design and implementation of land policies and their results nationally, regionally and locally. The problems associated with the implementation of programmes directed to tackle agrarian and rural conflicts and their relation with indigenous communities were also discussed. The case of the interviews carried out in the community chosen required the identification of reliable key informants that were approached several times during the fieldwork stage to discuss a variety of specific topics. All interviewed stakeholders spoke Spanish; this way any problem associated with communication was avoided. Although the local *Matlatzinca* language is widely spoken, virtually all the members of the community are also Spanish speakers (Reference to the interviews quoted in this thesis are made in the text).

3.4.2 Focus Groups and Group Discussions

Focus groups and group discussions are methods for eliciting qualitative information about previously determined topics (See Appendix 2). Their main difference is that while group discussions involve a wider cross-section of the population to be researched, focus groups are based on a number of interviewees that share specific traits or belong to specific organizational groups (Morgan 1996; Wengraf 2006). According to Bryman (2008:473) “The focus group practitioner is interested in the ways in which individuals discuss a certain issue *as members of a group*, rather than simply as individuals. In other words, with a focus group the researcher will be interested in such things as how people respond to each other’s views and build up a view out of the interaction that takes place within the group”. A series of focus groups were designed to obtain information about the different groups of the community. That was the case of *Ejidatarios*, *Comuneros*, *Posesionarios* and *Avecindados*, as well as two focus groups, one with civil and other with traditional and religious authorities involved in the administration of the whole community on different issues.

Given that the group discussion is less structured than the focus group, the group discussion can be based on the points of view that participants have about specific issues. As shown in Figure 3.1, seven group discussions were carried out during the fieldwork process¹⁵. Three of them were framed by my participation at the general assemblies that community members organize and that are open to all members of the community. Participating in the general assemblies of the villages represented a big achievement in terms of gaining trust among the villagers, since even State authorities and external government representatives are not allowed to attend them. In the community chosen as a case study the division between *Tierras Comunales* and *Ejido* lands is evident. Group discussions were designed to address the local governing bodies of these agrarian groups.

Defining what a household is according to the village characteristics and familiar dynamics as well as the concept of wealth and the local understanding of those terms was a major objective of the implementation of group discussions. One of

¹⁵ The group discussion about the wealth ranking participants belongs to the implementation of the participatory wealth ranking exercise, to be explained in section 3.4.3.2.

the group discussions consisted of a meeting organized with six community members. There were specific but not rigid characteristics for choosing the participants; e.g. long-standing members of the community, honest and ordinary farmers that represent a reliable cross-section of the villagers (for this characteristic, the local authorities suggested some participants, but they were not eligible for participating in order to avoid any slanted information). After explaining the nature of the exercise, the purpose and the ethical issues of the research, the discussion was directed first to the local definition of household. Hence, the basic characteristics of a household were listed and the purpose of identifying separate households according to these characteristics was achieved.

One of the evidences provided by the group discussion previously mentioned was that all the community members are able to recognize the rest of the people living in San Francisco. With the help of a previously obtained list of community members, a meeting was organized with the heads of the *Ejido* and *Tierras Comunales* councils to define the households' heads and their correspondent agrarian status or membership. The informants identified a total of 362 households and their respective heads. Once the informants identified the head of the household, then also their official agrarian status was recognized (as *Ejidatarios*, *Comuneros*, *Posesionarios* or *Avecindados*). As a result, a list of households' heads with membership characteristics was obtained. This list was the basis for the design and implementation of other qualitative research tools, such as the participatory wealth ranking, as well as the basis for the selection of respondents to the survey questionnaire of the quantitative stage of fieldwork

The distribution of households according to their agrarian membership is very important for future analysis. It is possible to state that this type of social differentiation comes from the different stages of land reform that rural Mexico has faced throughout most of last century. It represents the essential division of identities among the villagers and it determines their productive activities and their role within the community. Their agrarian status implies the link in between land-based resources and the benefits they produce.

3.4.3 RRA Techniques.

Since the early 1970s, participatory research approach techniques have been applied above all when researching rural and agrarian communities (Chambers 1994). Rapid Rural Approaches (RRA) techniques were devised as a group of methods designed to be faster and better for practical purposes than large survey questionnaires and in-depth anthropological and ethnographic approaches to research (Chambers 2007). During the 1980s and 1990s, RRA gave origin to Participatory Rural Appraisal techniques, which included various research tools such as semi-structured interviews, transect walks with observation, diagramming and mapping. External professionals and researchers designed these techniques aiming to work with local people, especially those who are poorer and marginalized. Characteristically, these people were grouped in small teams to map, observe, analyse and make conclusions about the particularities of their own situations and act correspondingly¹⁶ (*Ibid*). From the wide array of methods considered within RRA, this research used two: transects and participatory wealth ranking.

3.4.3.1 Transects

Transects are participatory techniques applied characteristically on researches based on case studies of agrarian communities, and is specially interesting on issues of land use and agro-ecology and agro-ecosystems analysis (Mukherjee 2003; Brown 2006; Chambers 2007). According to Mukherjee (2003:52): “Participatory transect walks systematically involves walking with the villagers through an area and discussing about different aspects of land use and rural ecological conditions [...]. A transect is a walk from one point of the village to another to enable the outsider the observation of different aspects of rural ecology and discuss with local people about soil conditions, land-use patterns, crops, livestock etc., and the problems associated with them”. With the introduction of new technologies such as GPS and GIS-based mapping, transects have been used to produce valid cartography that has been the basis for researches on natural

¹⁶ The aim of choosing RRA techniques was not to get people to act as consequence of the techniques applied. Other methodological approaches such as action research and Participatory Learning and Action (PLA) aim at changing the living conditions or specific situations faced by the participants. For further examples see Chambers 2007 and Poudel 2000.

resource use and access (Poudel *et al.* 2000; Mapedza *et al.* 2003; Bocco *et al.* 2005; Brown 2006). The fieldwork included three different transects in the village. The first transect was designed with the guidance of the *Matlatzinca* Chief, it was designed through the centre of the community and the surrounding forest to observe the use of forest in *Tierras Comunales* and *Ejido* lands. Applying this transect was useful for obtaining a better idea about the spatial distribution of resources, especially water. The second transect was carried out with the mine manager who designed a route through the mine installations to explain the general functioning of it. It started in the selling station, where all the material is classified and is taken by trucks to its different destinations. This part of the transect helped me to understand specific issues such as the regional importance of the mine and the origin of the trucks showed the influence area of the mining activities of San Francisco. These transect resulted also interesting from the organizational point of view. It was possible to analyse the different responsibilities the villagers face for the fact of being *Comuneros*. The mine organization also makes evident the aspects that of the official legislation that need to be respected according to the statutes. However, it was also possible to record the actions based on consuetudinary law regarding land appropriation and maintenance.

In the last transect organized with several community members, it was possible to notice the change in organization between *Ejidatarios* and *Comuneros*, specifically on forest. The transect included a route through a *Tierras Comunales* forest up to a point in which the *Ejido* takes responsibility of the land. The forest resources might be the same, but the use and exploitation of forest resources is different¹⁷. This transect included the visit to a specific location in the *Ejido* lands where the monarch butterfly (*Danaus plexippus*) arrives to spend the winter until mid March. Every year, hundreds of millions of monarch butterflies undertake a journey of up to 2000 miles from the north of the United States and Canada to the central highlands of Mexico. The state of Mexico and Michoacán are the only

¹⁷ Since the *Comuneros* have the chance of obtaining benefits from alternative sources (gas station concession and mining), the *Ejidatarios* have several wood and timber exploitation zones that, under the guidance of the National Forest Council (CONAFOR) –an institution from the federal government in charge of forest issues, log extensions of forest land affected by plagues.

places in Mexico where it is possible to visit several sanctuaries where the butterflies spend most of the winter. Entire villages have organized community-based projects of ecotourism based on butterflies' observation; in some cases this is the main source of income during the year. Surprisingly, the community of San Francisco Oxtotilpan, and specifically the group of *Ejidatarios* have not organized such kind of enterprises, constituting the only community in the region that has not participated in the commercial exploitation of the butterflies' migration pattern.

3.4.3.2 Participatory Wealth Ranking

As shown in Chapter 2, the analysis of wealth is central when trying to understand the distribution of benefits from land-based resources. Wealth is an external factor that influences the way in which resources are accessed. Analyses of wealth have been mainly used in Participatory Rural Approaches (PRA) to assess poverty, obtain information about what is relevant for local communities, as well as their preferences and assets (Grandin 1988; Scoones 1988; Hargreaves *et al.* 2007). Moreover, analyses of wealth can also show the *direction of change* (Ellis 2001:16) e. g. when and under what circumstances some members of the community have moved in or out different categories, what were the triggers of this movement, how social identity and capital gives people access to different authorities and opportunities to use resources in different ways, etc. (Grandin 1988; Ellis 2001).

Empirically, wealth becomes a characteristic of the household difficult to define across a community. This difficulty comes from the fact that members of the community locate households on different positions on a scale of perceived wealth. For achieving a sensitive-to-context concept of wealth, it was necessary to design a participatory research tool that allowed the members of the community to define the different indicators that derive wealth in the case study. Implementing a participatory wealth ranking exercise demonstrated that respondents could agree the variable criteria that make up wealth across the agrarian community. Furthermore, Participatory wealth ranking is a research tool that has been used as a way of mixing qualitative and quantitative methods (Hargreaves *et al.* 2007; Kebede 2007). This implies that addressing wealth through a participatory wealth

ranking technique facilitates data analysis based on multi-methods as well as the provision of insights that combined the analysis of different sources of qualitative and quantitative data.

Following the manual for wealth ranking of Grandin (1980) and the precepts of Participatory Wealth Ranking of Hargreaves *et al* (2007), the participatory wealth ranking carried out at the case study provides insights about the community perception of wealth; and furthermore, it made possible to distinguish three categories of households: poor, middle or better off and the well off, or rich. Moreover, it allowed the classification of each household of the community according to these wealth categories¹⁸. The main activities carried out are¹⁹:

1. Agree with key informants on working definitions of wealth.

Some of the previously implemented group discussions were focused on the local definition of concepts such as community and household. However, the first step of the wealth ranking exercise was to direct the discussion to the local understanding of the concept of 'wealth'. Accordingly, the participants of a group discussion defined the components of wealth based to their perceptions. According to the informants, the distribution of wealth depends on the criteria listed in Table 3.1:

¹⁸ There is a complete list of community members from a census carried out in 2008 by the Autonomous University of the State of Mexico (Dataset 1).

¹⁹ For a more specific set of instructions, see Grandin, (1980) and Ellis *et al*, (2001)

Table 3.3 Local components of wealth as perceived by the community members

Criteria	Poor	Middle or 'Better Off'	'Well Off'
Plots for cultivation	-No plots for cultivation -Renting/sharecropping in plots difficult to access	-Owners of small/few plots -Plots located in the valley and the surrounding mountains	-Owners of bigger plots -Well located plots
Council Membership	-No membership (<i>Avecindados</i>)	-No Membership (<i>Posesionarios</i>)	-Either <i>Comuneros</i> or <i>Ejidatarios</i> , or both of them
Housing	-Wood houses -No floor -Wooded walls and roof -Located far from roads	-Walls and floor made from concrete. -Well located, near roads	-House mainly made from concrete. -Near streets and roads. Well communicated
Agricultural assets	-No tools -No <i>Yunta</i> (horses/oxen)	- <i>Yunta</i> owner -Plough and other tools for working the land	- <i>Yunta</i> or tractor owners -Owners of all agricultural tools (no need for renting or borrowing)
Transport	-No transport -Few donkeys or horses	-Small car owner -Horse owners	-Car Owners -Truck or Pick up owners -Horses and donkey
Remittances from migrants	-No remittances	-Some Remittances from few migrating members	-Remittances from permanent migration
Non-farming businesses	-No non-farming business	-Some non-farm business -Seasonal businesses	-Non-farm business out of the village -Permanent businesses
Access to water	-No Sewage -No Irrigation water	-Piped sewage -Limited Irrigation water	-Piped sewage -Access to irrigation water

Source: Participatory Wealth Ranking conducted in San Francisco Oxtotilpan. October 2008.

The group discussion designed to obtain this table aimed at discussing the nature of the differences between categories of wealth without asking for specific households. Due to the extension of the discussion, it was not possible to carry on with a practice of a wealth ranking exercise; however a pilot wealth ranking exercise was carried out to crosscheck the accuracy of the wealth factors chosen in a separate session with different informants.

2. Pilot wealth ranking exercise with key informants.

To assess the wealth categories provided in the previous step, a pilot wealth ranking was designed including the households of one of the *colonias*. A discussion with four members of the *colonia* was arranged and the first step was to assess the factors of wealth previously chosen by other members of the community when the list of households was made. The wealth factors coincided with those suggested previously; therefore, it was possible to confirm that other community members share the local perception of the concept of wealth in general terms.

Once the wealth factors were listed in a blackboard, the names of the household heads were sorted in individual cards in a random order. In turns, the four informants were told to take the cards and sort them in front of them according to different wealth categories. The informants decided to pile the cards in three different categories (high medium and low). When the informants were unsure about the wealth category of certain household, they were asked to leave them aside in a separate pile. Once the informants finished piling the cards, I explained that it was necessary to double-check the names in the piles for creating a single categorization. One of the piles was chosen and the names were read aloud. The names that coincided in the four informants' piles were left in that wealth category and the remaining names were left aside. Once the three categories of wealth were reviewed and verified by the informants, the remaining households that could not be sorted initially were classified in an open discussion; for instance, the names were read aloud and the informants discussed the wealth category in which they belonged. To confirm the results, a discussion followed the wealth ranking practice about the issues that make different the wealth categories designed.

3. Grouping the households of the whole village into the different categories of wealth defined, and verify.

Once a decision was made about carrying out the wealth ranking exercise, a meeting with six informants was made to take part in the research technique. A similar process to the one described in the pilot wealth ranking was developed for

the definitive wealth ranking process. The informants chosen to participate in the wealth ranking exercise were from different colonies, all of them participated in group discussion or semi-structured interviews, so they would be familiar with the research purposes. The informants were asked to get together in a discussion for sorting the household cards in different wealth categories. The cards were previously prepared including all the households' heads of the community. There were no problems on recognizing each household head, and the sorting was done colony by colony. Once the informants agreed in the wealth ranking of a whole colony, then a pile of cards with the names of the next colony was passed to the informants for the correspondent sorting, up to the seven colonies of San Francisco Oxtotilpan.

In the process of sorting the cards and verifying the wealth categories, the informants were constantly thinking about wealth differences in their community. The wealth ranking was followed by a discussion about what differentiates from household to household and from colony to colony, as well as the issues that share. This discussion provided specific topics to be held on further semi-structured interviews and even focus groups, as well as the basic information to choose the survey questionnaire's respondents. From the wealth ranking exercise, it was possible to identify specific households from each wealth category for further interviewing and the application of other PRA-type methods²⁰. Furthermore, the categories of wealth were the basis for the implementation of quantitative techniques such as the survey design and identification of survey questionnaire respondents. Hence, the wealth ranking exercise represented the inflection point in between the qualitative techniques and the quantitative information obtained.

²⁰ For a complete list of proceedings for carrying out participatory wealth ranking refer to Grandin, 1988 and Ellis *et al*, 2001 for a practical example see Hargreaves *et al*, 2007.

3.5 Quantitative Data Collection

The quantitative stage of fieldwork is mainly framed by the implementation of a survey questionnaire. The survey questionnaire provided data that complemented the findings based on the qualitative techniques described previously. Implementing the survey questionnaire represented the second stage of fieldwork, and provided the set of data on which most references to quantitative data is based (*Dataset 2*). The use of descriptive statistics was the main tool for data analysis. Although most of the quantitative data comes from *dataset 2* (survey questionnaire) some reference is made to *dataset 1* (which is the census provided by the Autonomous University of the State of Mexico) and some quantitative insights provided by a cartographic analysis carried out with satellite imagery. Descriptive statistics were used to describe the basic features of the mainly quantitative data gathered. The aim of this method was to draw on simple summaries from the sample. Together with simple graphics analysis, the use of descriptive statistics for the analysis of information used:

- Graphical displays to summarize the data or facilitate comparisons.
- Tabular descriptions in which tables of numbers summarize the data.
- Summary statistics (single numbers), which summarize the data collected.

During the data interpretation and analysis, the combination of qualitative and quantitative data provided a clearer and much more detailed approach to the causes and not only the description of the processes around access to landed resources. The survey questionnaire and the survey in general was designed to reveal the causalities behind specific activities and trends of access, while unravelling the complex networks and relations that different households put in practice to maximize their benefits from things. The following subsections describe the processes carried out in this stage of fieldwork.

3.5.1 The Household Survey

Household survey is a technique widely used in income and wealth assessments on land-related conflicted communities (Munro 2009; Xu *et al.* 2009; Fisher *et al.* 2010). The household survey was designed to obtain important information about the characteristics of each individual household. The results of this stage of

fieldwork were analysed through the use of basic descriptive statistical tools. One of the purposes of the survey questionnaire is to achieve a better understanding of the productive activities carried out by a cross-section of the community's households. This proceeding aims at validating the information previously obtained, not by increasing the number of respondents, but also by diversifying the sample to achieve a truly cross-section of the *Matlatzinca* community.

The first stage of the implementation of the survey included designing a comprehensive questionnaire that included the relevant aspects of households' access to land-based resources and other productive resources. Some of the central aspects included were related to household members' works, productive activities and income. Such kind of sensitive issues were included in the questionnaire in a way that could be clear to the respondent to understand, and when possible, some instruments were devised to obtain information indirectly (for instance, in stead of asking the amount earned by each household from agricultural activities, the result was inferred by subtracting the variable costs from the gross income). This strategy was used in every form of the questionnaire applied (See Appendix 1).

Once a first draft of the questionnaire was elaborated, two households were selected to carry out a preliminary application of the designed survey questionnaire as a way of practice exercise to evaluate its feasibility. By practicing the survey questionnaire before the actual implementation, it was possible to measure the time of interview, and the issues that might be problematic to answer. Based on this practice, certain modifications were made resulting in a new survey questionnaire that was then commented and corrected by the supervisory team at the School of International Development of the University of East Anglia.

Some of the considerations taken for the implementation of the household survey were:

- a) The researcher alone without the help of enumerators or research assistants conducted the sample survey.
- b) Interviews were conducted preferable with all or the majority of members of the household. Some forms were directed to specific members of the household when appropriate.
- c) Due to the sample size, attention to details was really important. Each questionnaire was double-checked after the interview to identify problems that could be corrected in subsequent visits to the same household.
- d) Generally, only one visit to the household was enough for completing the questionnaire, with the exception of the cases where some members of the household that were essential to take part of the questionnaire were away. In those cases a revisit was programmed.
- e) The sample survey included a form that elicited qualitative data. This form required being aware of the need for obtaining more in depth insights about the topics included in the survey.

The particularities of the household survey are discussed in the following subsections.

3.5.1.1. Respondent Selection.

The selection of household that participated in the survey was based on a list of the total number of households and their heads according to the previously applied participatory wealth ranking technique (*Dataset 1*)²¹. In order to avoid slanting the sample by stratifying it according to wealth categories, and with the aim of providing all the households listed an equal probability of inclusion in the sample, a simple random sampling technique was applied to define the respondents. After designing the survey questionnaire and practicing the interview, a sample size of 25% was decided in terms of feasibility (time of application of three months; from April to June 2009). However, choosing simple random sampling also responds to the acknowledgement of the dynamic processes that

²¹ As mentioned before, the list of households obtained previously was extracted from a census exercise carried out by the Autonomous University of the State of Mexico in 2008. The data were a list of the community members that was updated during the application of the participatory wealth ranking exercise.

households face over the time and most important aiming to include a maximum heterogeneity in terms of the issues of investigation (Corbetta 2003); namely for this research, the mechanisms of access to land-based and other productive resources.

Assigning numbers to the list of total households in the community chosen achieved random sampling. These numbers are written down on pieces of paper, mixed up and drawn from a container (Ellis 2001; Corbetta 2003). The total number of households to be sampled from the community chosen consisted of 354. After the research period allocated for the implementation of the survey, a total of 93 households were randomly selected and interviewed based on the questionnaire previously designed. The sample size obtained represented the 26.3% of the total population and included a representative cross-section of the different agrarian structures and wealth categories in which is possible to classify different households²².

Due to the kind of analysis carried out in the empirical chapters of this thesis, the statistical analysis aimed at describing the research techniques between the different groups included in the sample. Hence, wealth and agrarian characteristics are criteria that are highlighted while using both qualitative and quantitative insights to explain the complexity of access to landed resources in the community chosen. The next sections show the information obtained for the application of the household survey. Each subtitle indicates each form answered by the respondents in the sample survey and the information obtained:

3.5.1.2. The Survey Design.

The survey designed for this stage was an adaptation of the survey implemented in the Livelihoods and Diversification Directions Explored by Research – LADDER (Ellis 2001; Bradstock 2003). The survey questionnaire includes eight forms that were designed to obtain quantitative information from each household selected. Special attention received the identification of access mechanisms and other productive resources as defined in Chapter 2, and the *Matlatzinca* notion of

²² Although the list of households from which the sample was taken was the same used in the wealth ranking exercise, the sample was not stratified according to the wealth categories because the participatory wealth ranking technique required post-implementation validation.

participation in different activities regarding land-based and other productive resources. The following subsections explain each form that can be consulted in Appendix 1.

Form A: Basic Household Data

- Basic data of the members currently residing at the household e.g. age, education level, occupation, etc.
- Basic data of the family members currently residing outside the household.
- Insights about remittances and migration patterns were included in this form.

Form B: Land and Housing

- Information about land owned and operated by the household
- Official agrarian status (*ejidal, comunal*)
- Plots registered in the Procede programme.
- Ownership (actual owner of the plots according to the land title).
- Access to credits and savings due to titling.
- Types of livestock owned.
- Housing materials.

Form C Household access to aid programmes and credits

- Participation in official aid programmes and credits.

Form D: Crops outputs and income

- Outcomes and income from agricultural production.
- General information about the crops (harvest month, kind, variety)
- Total production/consumption and commercialization.
- Crops market prices and Assets.
- Input costs and quantity (fertilizer, labour etc.).
- Perception on the profitability of agricultural activities.

Form E: Livestock and other landed resources outputs and assets

- General information about the livestock (commercialization of livestock secondary products, pricing and income)
- Total production/consumption and commercialization.

- Market prices and Assets.
- Input costs and quantity (Vaccinations, labour etc.).
- General information about the resources obtained from the forest (Mushrooms, soil, water etc.)
- Total extraction/consumption and commercialization.
- Types of products obtained from other land-based resources (forest and grazing lands).
- Perception of the profitability of livestock activities.

Form F: Wages and non-farm income received by household

Each household member who migrates seasonally during the past year was interviewed using this form. For the members that have migrated permanently, insights were previously collected about the place of residence and how often and how much money is sent back home (from the *Form A*).

- Amount earned by each household member that receives wages or from non-farm activities.
- Type of work.
- How often the work is carried out.
- Place of work

Form G: Household income summary and check list

This form was designed to come up with the total household income, as well as the summary of the activities that generate income.

- Summary of the figures on income obtained from the previous forms.
- Total income from all sources.

Form H: Changes due to land reform-related processes

Section of the survey that included open and closed questions designed to obtain qualitative information about specific issues related with the implementation of land reform-related programmes, as well as the conflicts that have taken place in the last 10-year period due to the intervention external institutions and the introduction of land policies. This section of the survey was designed to obtain information that could be missing or that could complement the findings from the

previous qualitative stage. This form also provided the opportunity to investigate and obtain more detailed insights, above all regarding households' perception of different access- and land reform-specific issues. This form also was designed to corroborate some of the answers provided in previous sections of the survey questionnaire.

- Main activities of the household and how these activities have changed over the time.
- Other activities that the household members would like to participate but are not allowed or available for them (due to legal, cultural, economic or administrative constraints).
- Participation in Procede and changes in livelihood strategies due to their participation in this and other official programmes.
- Benefits of the land reform.
- Land-based resources availability and changes over the time.
- How land reform brought changes in the household.
- Land subdivision due to titling or land reform programmes.

After the completion of the fieldwork stage, the data obtained from the household survey was transferred into a database that was analysed by the use of SPSS. Since the database follow the structure of the survey questionnaire, the same coding was used to make more efficient the analysis of information. The database do not included names of participants, but a code was included to identify specific cases in case of recalling information was needed.

3.6. Conclusions

There are two issues to be highlighted from the methodology designed for this research; first, the use of a case study as a research approach; and second, the combination of methods and data to achieve the empirical goals and illustrate the analytical framework of this research. Since this study aims to provide a comprehensive empirical map of the complex set of relations and dynamics of access to land-based resources, the use of a case study allowed a more intensive and detailed analysis of the information collected. The complexity and particularity of the community chosen as a case study demonstrated to be a

valuable example of the dynamics of access to land-based resources in agrarian communities in the rural context of Mexico.

In terms of the application of the set of research techniques designed for this research, the combination of both quantitative and qualitative research methods demonstrated to be suitable for the research strategy planned. Furthermore, the resulting findings were complementary, especially when it came to the analysis of data after the period of fieldwork. Another purpose for adopting a multi-methods approach was the need for understanding, rather than measuring the causal relations that create different outcomes regarding the distribution of benefits from land-based resources.

CHAPTER 4. FROM AGRICULTURAL PRODUCTION TO AGRARIAN CONTROL: THE IMPLEMENTATION OF THE 1990s LAND REFORM

4.1. Introduction

Under the premises of revitalizing the social sector, the Mexican government carried out a series of land reforms in the early 1990s with an emphasis on land tenure security and on the individualization of the collective functions of the *Ejido* (de Ita 2003; Klooster 2003; Brown 2007). These reforms can be divided into two stages: first, the modification of the 27th article of the National Constitution, and second, the formulation of a new agrarian law that in turn gave place to the introduction of new agrarian institutions. The general ambitions of these legal modifications were improving the productivity of agrarian communities and setting up a more secure land tenure environment for rural peasants that would reduce poverty (Kay 1997; de Ita 2003; Nuijten 2003a).

The land reforms implemented from the early 1990s respond to the neo-liberal approaches to development that pushed tenure security, land certification and titling as the means to fight rural poverty in developing countries. However, relevant literature has highlighted the general failure of these reforms to deliver the promises of making more efficient the use of resources, stimulating investment and thereby, boosting agricultural growth (Wiggins *et al.* 2002; Nuijten 2003a). Furthermore, parallel to these legal reforms other social processes have been accentuating other problems often inherent to the Mexican rural sector. For the case of the *Matlatzinca* community, the scenario is characteristic: problems of agricultural productivity and commercialization, land abandonment, unequal distribution of benefits from the exploitation of constrained land-based resources and social segregation.

The current situation of the *Matlatzinca* ethnic group must not be assumed as an overall result of the modifications brought by the land reforms, but as a

combination of processes present in the community even before the 1990s, one of which is the land reform itself. These processes combined with the early 1990s legal modification brought changes in the agrarian structure of rural communities, allowing different sectors of the community to obtain better outcomes from the land reform, while some other sectors might be struggling or marginalized. Furthermore, it is argued in this chapter that these processes of land reform have had effects on the internal governance structure of the agrarian community and the management of land-based resources rather than on the economic situation of its members. Furthermore, the changes are not only reflected in the internal governance structure of the community, but also in the way in which the agrarian community relates to external institutions.

For the case of Mexico, “[...] eighty years of land reform[s] that started with the Mexican Revolution have deeply transformed the rural sector, but not to the advantage of the peasants” (de Janvry *et al*, 2001:141). Furthermore, it is possible to characterize the land reform of Mexico as a long process that has taken place from early last century to the present days. However, the last period of land reform has had the most notable examples of modification to the agrarian structure of rural Mexico. Hence, this chapter looks at the 1990s land reform process, specifically the introduction of a new agrarian law, as the background of the current way by which the community access land-based resources. Furthermore, the land reform process is analysed here as a modifying factor of the agrarian communities structure, their activities relating access to land-based resources and their relation with external institutions.

For achieving this analysis, this chapter is divided in three sections. The next section deals with the way in which advocates of the land reform tried to improve the productivity of the *Ejido* by modifying the National Constitution. This represents the first stage of the land reform of the early 1990s. The following section deals with the second stage, which aimed at introducing a new agrarian law with the main objective of reducing the poverty of *Ejidors* and *comunidades* in rural Mexico. A series of limitations of this legal modification are the main subject of analysis on this section.

The last section concludes the chapter by highlighting the unexpected consequences of the land reform. These consequences frame the way in which agrarian communities, such as the *Matlatzinca*, currently access land-based resources.

4.2. First step: Modifying the agrarian structure

During the administration of President Carlos Salinas de Gortari (1989-1995) a series of important reforms were passed providing the basis for the current agrarian organization of Mexico. At that time, international funding institutions such as the World Bank, the Inter-American Development Bank and FAO, looked at market-led agrarian reforms as central instruments to fight rural poverty in developing countries, especially in Latin America (Nuijten 2003a). Mexico was central to this debate. Since the early 1990s, almost 55 per cent of Mexico's arable land (Wiggins *et al.* 2002:181) and 70 per cent of its forest cover (Olinto *et al.* 2000) were in possession of *Ejido* lands. The re-distribution of land to *Ejidors* was considered the main legacy of the 1910 Mexican revolution; however, the neo-liberal project of the government considered the *Ejido* as unproductive, unsustainable and an obstacle for the modernization of agriculture (Thompson and Wilson 1994; Contreras-Cantu and Castellanos-Hernandez 2000; Olinto *et al.* 2000; Zepeda 2000). The laws and programmes passed during this period are often characterised as counter-reforms given that it contravenes the reforms passed by the State right after the Mexican revolution. Furthermore, while the land reforms carried out after the revolution aimed at re-distributing land from large landowners to smallholders, the counter-reforms of the early 1990s provided the legal basis for the privatization of *Ejido* land.

Due to the imminent participation of Mexico in the North American Free Trade Agreement (NAFTA) with Canada and United States, the Mexican government established the basis for the privatization of *Ejido* land aiming to increase the economic efficiency of the rural sector (Kay 1997; Leonard *et al.* 2003; Bobrow-Strain 2004; Kay *et al.* 2008). It was necessary to modify the preponderant agrarian structure based on an agrarian system –the *Ejido*. However, being a tenure system that restricted any type of land transaction, the *Ejido* did not allow plans for urban expansion and did not attract private investment (Barnes 2009).

The package of new policies questioned not only the productivity of the *Ejido* but also the organization of rural communities around natural resources. At almost 20 years of the implementation of these policies, these legal modifications have had more notable consequences on the agrarian structure itself, rather than on increasing the agrarian productivity or reducing rural poverty.

4.2.1. At the core of the Mexican Agrarian structure: The Ejido

The *Ejido* as a collective landholding crystallised the claims of the Mexican revolution in 1910 (Lewis 2002). *Tierra y Libertad* [Land and Freedom] was the main statement of the movement. A revolution that was meant to offset the concentration of land among a few landlords that prevailed throughout the nineteenth century and was reinforced during the dictatorship of Porfirio Diaz (1876-1910) (Stephen 1997). The agreement that constituted the end of the revolution, was the *Plan de Ayala* (1915), which stated that one third of the land owned by large landholders should be distributed among peasants grouped into *Ejidors* (*ibid*: 403). The Mexican Constitution created in 1917 officially recognized this redistribution; its 27th article stated that all land and water resources belonged to the nation. It fixed the size of the *Ejidatario* parcel to a minimum of 10Ha of irrigated land and declared *Ejido* land to be inalienable, and owned collectively by a single group (Lewis 2002).

The *Ejido* was constituted as a land tenure system in which the government promotes the use of communal land shared by the people of rural communities (Johnson 2001). The government stipulated that “[...] *Ejido* land could not be sold, rented, or mortgaged, that usufruct rights would be contingent on occupation and cultivation, and that subdivision, even in the context of inheritance, would be prohibited” (Olinto, Deininger and Davis, 2000:2). Furthermore, the members of the *Ejido* council, (*Ejidatarios*) were entitled to work a plot of their own, while land rights were administered collectively through *Ejido* council assemblies.

According to the agrarian law, obtaining an agricultural plot from the *Ejido* was either through direct allocation from the community-based *Ejido* authorities or through inheriting from a relative. Law prohibited any kind of transaction such as selling, renting, or dividing land. The land in possession of an *Ejido* was

considered collective; therefore, the government provided a single title for the whole *Ejido* that stipulated the names of the *Ejidatarios* (members of the *Ejido*), but without stating the number, extension and location of plots in possession of each member (Barnes 2009; Bouquet 2009). In some communities (such as in the *Matlatzinca* case) land management and administration got divided in *Ejido* – looking mainly at agricultural and housing lands, and *Tierras Comunes* or *Comunidad* –with jurisdiction over grazing land and forest. The arable land of the country that did not fall into these categories was occupied by private lands conceded by the federal government, some large and capitalized, in areas that were little affected by land redistribution and with geographical conditions propitious for higher agriculture production (Wiggins, *et al.*, 2002).

The distinction of land (*Ejido* and *Tierras Comunes*) brought about an organizational and structural change within agrarian communities; their members had to be included into different groups according to their membership of different agrarian categories –*Ejidatarios*, *Comuneros*, *Avecindados* and *Posesionarios*²³. Different studies have dealt with the way these groups constitute themselves as social identities that can result on local elites that might control the distribution of benefits from resources (Nuijten 2003a; Bray *et al.* 2006). Membership of each of these groups not only shapes the strategies for accessing local natural resources, but also defines the identity of each villager at any given rural community in Mexico (See Chapter 7 on relational mechanisms of access).

It was not until the government of Lázaro Cardenas, (1934-1940) when the first massive land re-distribution and the first individual land registry took place. This first and biggest phase of land re-distribution decreased the number of landless labourers by 50 per cent in six years (Lewis 2002). Furthermore, Cardenas expropriated 18 million hectares of privately owned land for re-distribution; these represented more than twice the amount of land re-distributed to landless labourers since the end of the revolution (1917-1934) (Bouquet 2009:394). The following administrations implemented land re-distribution programmes, but in a

²³ *Avecindados* are members of the community without agricultural plots; *Posesionarios* are members of the community that are not recognized as neither *Ejidatarios* nor *Comuneros*, but have possession of agricultural plots.

smaller scale. The main characteristic of the following years was the increasing regulation of agricultural production by the State through the introduction of subsidies and price support.

As many Latin American countries after World War II, Mexico embraced the mainstream school of thought that supported a development model based on import-substitution industrialization to achieve economic growth and socio-economic modernization (Weisskoff 1980). Hence, the Mexican government embarked on a combination of State ownership of key industries, State subsidies (food prices, local investment, imported machinery, etc.), aiming to reinforce the local production and investment. During the 1970s manufacturing was the most dynamic sector of the Mexican economy (Aspra 1989). At that time Mexico began to build its economic structure based on its oil industry. By the end of the 1980s, the main objective of the Mexican Government was to encourage industrial development at any cost (including external finances). In this development model, agriculture was regarded as a burden to the neo-liberal plans of the time. By the end of the 1980s, policies tended to push for economic liberalization and privatization as the main route for development. Hence, during the administration of Carlos Salinas (1989-1995), the 'Reform for the Countryside' programme was launched, intended to liberalize Mexican agriculture, open it up to international markets, and decrease State regulation of the agricultural sector (Salinas and Solis, 1994; in Lewis, 2002).

As previously mentioned, due to external pressures aimed at fulfilling the requirements and demands of the NAFTA, neo-liberal planners under the World Bank recommendations, drove a series of counter-reforms to the agrarian legislation, that were oriented towards making the privatization of *Ejido* land possible, with an emphasis on land tenure security, the individualization of the collective functions of the *Ejido* and its destruction as a unit of production and organization (Barraclough 1999; de Ita 2003). These reforms promised not only to make more efficient the use of resources, but also stimulate investment and in that way enhance agricultural growth (Heath 1992; Kay 1997; Wiggins *et al.* 2002; Nuijten 2003a; Kay *et al.* 2008).

The first action taken to achieve those goals was to modify the 27th Constitutional article, which is the article that deals with issues of ownership and access to land and land-based resources. Changing the National Constitution was the first step towards the introduction of a new set of agrarian laws, the introduction of new agrarian authorities and consequently, the participation of Mexico in the North American Free Trade Agreement (NAFTA).

4.2.2. The changes to the National Constitution

The reasons used by the Mexican Government to justify the amendment of the 27th article of the national constitution included that it would allow *Ejidots* to relate to outsiders in market-oriented transactions; once certified, it would permit individual agricultural and residential lots to be sold to other members of the community or even leased to outsiders; if at least two thirds of the community agree, *Ejidots* and *comunidades* could change their tenure regime into private property (*dominio pleno*), this process would allow selling land to outsiders (Thompson and Wilson 1994; Barnes 2009). However, in some communities such as the case in this thesis, these outcomes were never reached in practical terms. Furthermore, the amendment to the 27th article brought a series of consequences that transcend agricultural and residential lands.

The 27th article of the Mexican Constitution, in its 4th paragraph mentions: “[...] corresponds to the nation the direct domain of all the natural resources” (Mexican-Constitution 2011). However, the main amendment includes: “The State will have the administrative organisms required to the effective management of exclusive areas on its jurisdiction [...], and regarding priority activities, social and private sectors can participate in concordance to the law” (*ibid*). In other words, the management of exclusive areas²⁴ (such as oil and energy industry) is direct responsibility of the state, while private and social sectors can participate in priority activities (such as agriculture and natural resource management). This amendment opened the field to external actors to exploit land that previously was restricted for them due to the strong agrarian regulations. Examples about private companies offering economic incentives, and often buying the land of entire

²⁴ There is a current debate about the privatization of PEMEX –the state oil company that would represent a new amendment to the 27th Constitutional article.

communities for commercial agriculture are common in the literature (Jones and Ward 1998; Bobrow-Strain 2004; Brana-Varela 2005; Haenn 2006; Orozco-Hernandez and Sanchez-Salazar 2006).

The neo-liberal package of policies aimed at tackling the perceived problem of the *Ejido*'s lack of productivity by promoting the means of land privatization²⁵. Changing the National Constitution, specifically article 27, represented the first step towards privatising not only land, but also the associated natural resources. Moreover, a new agrarian law was passed in 1994 allowing *Ejido* plots to be registered individually and freely traded or offered as collateral (RAN 1992; Olinto *et al.* 2000). The introduction of this new agrarian law is considered as the second step towards privatizing land and land-based natural resources. It included the creation of new bureaucratic bodies dealing with agrarian issues. That is the case of the Agrarian Tribunals, the Ministry of Land Reform, and the programme that was in charge of land titling –Procede.

These processes of land reform have introduced deep modifications to indigenous and smallholders' access to rural land and natural resources (de Ita 2003). According to Nuijten (2003a), the early 1990's land reforms and the consequent introduction of a new agrarian law legalize practices that encourage more bureaucracy and denies the role of local institutions self-governance and management rights (Nuijten 2004). An example of these practices is the presence of vernacular land markets (Chimhowu and Woodgate 2006); previously penalized by the federal law, and currently encouraged only by participating at the titling programme (Procede). This misfit between the official law and local authorities regarding natural resources management and land rights represents the roots of indigenous movements that claim agrarian justice and resource access. Some of these claims have led to violent backlashes in other regions of Mexico, such as Chiapas and Oaxaca (Deininger and Squire 1998; Nuijten 2004).

²⁵ Studies at that time found out that between individual *Ejido* parcels and small private holdings there was no significant difference in terms of productivity (See Heath 1992).

4.2.3. Indigenous groups and land-based natural resources: the current situation

Some analysts suggest that the processes of economic liberalization in Mexico relates to a more international context (Hamilton and Mee-Kim 1993). Furthermore, it was stated that supra-national oriented economic liberalization would enforce Mexico's national political liberalization (*Ibid.*). However, in the local and regional context there is a constant disbelief towards reforms and official programmes that might disseminate a change in the structure and organization of local communities, specially in the rural sector (Sandoval-Forero 2001). The general scepticism regarding the implementation of neo-liberal policies is even more evident in the Mexican indigenous sector, which appropriates and internalizes the sense of being socially, culturally and economically constrained by external and non-inclusive policies (Breton, 2006). Furthermore, the rejection of government policies has contributed to accelerate the internal fragmentation of the country especially in rural regions inhabited by indigenous groups.

The case of Chiapas is illustrative of how land reforms have modified local natural resources dynamics at the ground level, and it is considered as a meaningful reference of the social and political struggle that shows the rejection and breakdown of neo-liberal reforms in the rural environment. The Zapatista National Liberation Army (EZLN) insurrection in the Lacandona Rainforest in Chiapas is an example of the distrust from the indigenous communities, to the official policies and programmes (*Ibid.*). Starting in 1994, several *Maya* indigenous groups rejected and defied the implementation of policies that the Mexican State was designing and implementing. The uprising of the Zapatista movement coincided with the implementation of the North American Free Trade Agreement (NAFTA) that was regarded by the indigenous groups as a threat to their consuetudinary ways of natural resources management especially land. Under the claim of *Libertad, Justicia y Dignidad!* (Liberty, Justice and Dignity), the Zapatista movement declared the war against the Mexican State and urged for their rights as indigenous peoples to be recognized in the current legal order.

The social and cultural characteristics and the way of lives of indigenous peoples in Mexico are virtually non-existent in the current legal frame, including both the National Constitution and the Agrarian law. The 2nd article of the National Constitution mentions:

“Indigenous groups have the right to self-determination within a constitutional frame that secures the national unity. [...] This constitution warrants indigenous groups autonomy to: [Sec. II (modified in 2001)] apply their own normative systems regarding their internal regulation and conflict resolution, subject to the general principles of this Constitution, respecting the individual rights, human rights and most importantly, the dignity and integrity of women. The law will establish the cases and procedures of validation by the judges and correspondent tribunals” (Mexican-Constitution 2009).

There are two main conclusions to be taken from this: first, indigenous customary practices are considered by the Constitution as long as these practices are not discordant with it. In reality, the Constitution establishes an *a priori* limitation since most of the indigenous customary practices –above all regarding land disputes and problem-solving– are different to what is established in the law (Sandoval-Forero 2001; Orozco-Hernandez and Sanchez-Salazar 2006). When stating that only customary practices that are non-contradictory to the National Constitution will be taken into account, the National Constitution subordinates indigenous consuetudinary legal frameworks to what is established in the official law. Therefore, as stated in the Constitution, the consuetudinary legality cannot be included within what is considered officially as legal. The second conclusion deals with the means of validation that the National Constitution establishes to regulate productive activities not contemplated on it. In order to be considered officially legal, a customary practice must be qualified as such by an official set of laws or tribunals. Hence, practices that are sanctioned as legal by consuetudinary authorities at the community-level may be considered illegal in official legislation.

There are two relevant official laws that *Matlatzinca* livelihoods need to take into account when dealing with land-based resources: the General Law of Ecological Equilibrium and Environmental Protection (*Ley General de Equilibrio Ecológico y Protección al ambiente* -LGEEPA), and the General Law of Forest Sustainable

Development (*Ley General de Desarrollo Forestal Sustentable* -LGDFS). On one hand, LGEEPA regulates the activities of national parks in Mexico, and since San Francisco Oxtotilpan is enclosed partially within the boundaries of the Nevado de Toluca National Park; LGEEPA has a very active role, mainly at surveillance of productive activities and enforcement of the law through the use of the federal police. On the other hand, LGDFS regulates the activities carried out in forests in Mexico, regardless of their status as national parks, biosphere reserves or natural protected zones²⁶. LGDFS was approved and enacted in 2003 as a response for international pressures to substitute the previous forest law of 1992 (LGDFS 2003; Montes de Oca y Dominguez 2004)²⁷. The introduction of the LGDFS represented an enormous change in the way *Matlatzincas* used their territory. There are numerous examples of resources that were used in their everyday activities whose extraction is now banned by LGDFS. In this respect, one of the informants mentioned (I-1):

“What do you think about the presence of the federal police in San Francisco boundaries? We have had lots of problems with them. They have caught lots of people [carrying] varillas [for the confection brooms and for fireworks] branches, [wood for making ploughs and other agricultural tools], or firewood [...] we have done that since ever, and since the police is here, people has to be very careful about walking with a stick from the wood. We are not damaging the forest by taking some dry wood from it, and we really need that for our activities. They [the police] should catch the real loggers in the Nevado [National Park]. Are there big loggers in San Francisco? No, we have make sure outsiders [from nearby villages] know we can also punish them if they come to log our forest, or even to take something from it”

The introduction of LGDFS has been shown more restrictive for the *Matlatzinca* community. *Tierras Comunales* and *Ejido* representatives report not having new agreements based on the new law, and furthermore, since the National Forestry Commission is in charge of determining where the forest needs to be logged due to the presence of diseases, extraction contracts have been granted in the same

²⁶ Although this thesis will not deal with the interpolation of both laws in the context of forest management in Mexico, the analysis highlights the generalized perception of constrain and restriction that the *Matlatzinca* group claims.

²⁷ LGDFS is based on the application of five objectives: 1) Stop illegality and depredation. 2) Structure a new forest model for Mexico. 3) Prompt social participation; 4) Link forest, water, forest and biodiversity and 5) Promote value chains to generate wealth and employment (*Ibid.*).

proportion before and after the implementation of LGDFS. There is a growing concern among the members of San Francisco Oxtotilpan about the restrictions imposed by LGDFS, on one hand, and the enforcement of this law through the use of police forces that can even use violence. Further research is required about the way in which indigenous groups in Mexico have suffered the effect of restrictive policies at the household level; however, there is an important lesson to learn from the *Matlatzinca* case, and its based on their ability to implement customary justice based on sets of laws and actions communally accepted and enforced by a consuetudinary legal framework²⁸.

4.3. Second Step: Creating a new legal framework

Most analysis of the land policies of the early 1990s in Mexico characterize them as structural changes aiming to privatise and deregulating the rural sector (Nuijten 2003a; Bobrow-Strain 2004; Kay 2007; Kay *et al.* 2008; Barnes 2009; Bouquet 2009; Barsimantov *et al.* 2011). The neo-liberal set of laws was introduced with the justification –as stated by the previous section– of increasing the productivity of the *Ejido* by providing the means for rural producers to access commercial markets, private investment, and consequently, new technology (Jones and Ward 1998; de Ita 2003; Luers *et al.* 2006). However, the *Ejido* as a tenure system represented a kind of property type that did not attract investment from external capital holders or financial and credit institutions (Contreras-Cantu and Castellanos-Hernandez 2000). Moreover, *Ejidatarios* and *Comuneros* could not approach these institutions looking for financial support since their *Ejido* certificate was not accepted as collateral for their lands (Zepeda 2000; Chacon-Hernandez 2005; Bouquet 2009).

The neo-liberal approach was based on the idea that these problems could be tackled by providing tenure security to the smallholders in rural Mexico. The introduction of a new agrarian law and the implementation of the agrarian tribunals and the individual *Ejido* land certification and titling programme (*Programa de Certificacion de Derechos Ejidales y Titulacion de Solares*

²⁸ There are a series of governance arrangements that the community put in place to bend the law with the purpose of carrying out their land-based activities. Reference to these activities is made in the following chapters.

Urbanos –Procede) brought a series of consequences that overtook the original objective of creating a more secure land tenure system. Some of these consequences are visible nowadays when analysing the limitations of the implementation of the new agrarian legal frame.

4.3.1. Limitations to the new agrarian law

As mentioned, the introduction of a new agrarian law in the early 1990s assumes that agrarian liberalization consists of abolishing the legal constraints of the *Ejido* to allow its participation in commercial transactions such as renting, selling, mortgaging or subdividing land (Chacon-Hernandez 2005). Land reform advocates saw liberalisation as the ultimate way of providing legal certainty to the *Ejido* system, a process that in turn will tackle the problem of rural poverty, improve the management of the so-called social property, and provide an environment in which the conflicts around land could be solved more efficiently (Contreras-Cantu and Castellanos-Hernandez 2000; Wilder and Romero Lankao 2006; Bouquet 2009; Barsimantov *et al.* 2011). The next sub-sections show a series of limitations to the new agrarian law that were found in San Francisco Oxtotilpan.

4.3.1.1. Fight against poverty

The advocates of the early 1990s land reform pushed the introduction of a new agrarian law as a necessary mechanism to insert smallholders into commercial markets that in turn would reduce the poverty of the rural sector. It is especially notable that within the contents of the new agrarian law, there is no direct reference to any regulation dealing with the fight against poverty. However, it sets the legal basis for the creation of the Agrarian Tribunals of the National Agrarian Registry (*Registro Agrario Nacional*) that with the time would become the main provider of social assistance for agricultural production in Mexico (Téllez 1994; Herrera-Tapia *et al.* 2009).

Since the introduction of the new agrarian reform the fight against poverty in the rural sector has been based on the provision of conditional cash transfers. Some of these programmes have become emblematic of the official politico-legal institutions of the State in charge of agrarian issues. That is the case of the Programme for Direct Agricultural Assistance (*Programa de Apoyos Directos al*

Campo –Procampo). Procampo was introduced in 1994 to compensate agricultural producers (above all smallholders) for the anticipated negative price effects of trade liberalization due to Mexico's participation in the North American Free Trade Agreement (NAFTA). It was expected to support small agricultural producers in the *Ejido* sector for the first 15 years after the so-called transition toward free trade²⁹. Procampo is a conditional cash transfer programme that distributes economic resources according to the surface planted with any of the nine basic crops (maize, beans, rice, wheat, sorghum, barley, soybeans, cardamom and cotton). Originally, Procampo aimed at distributing 680 Mexican Pesos (£35) per agricultural cycle per registered hectare, although this amount has varied throughout the years; according to official figures the current amount allocated is 963 Mexican Pesos (£50) per agricultural cycle³⁰. Households that are current participating in Procampo, receive the correspondent transfer according to the surface registered originally in 1994. Since then, farmers have to demonstrate that the registered plots are used for the production of the basic crops mentioned. Recent studies have demonstrated that Procampo has had multiplier effects for improving livelihoods, rather than directly on agricultural production (Sadoulet *et al.* 2001; Juarez-Sanchez and Ramirez-Valverde 2006; Wilder and Romero Lankao 2006; PEC 2009). As stated by a Procampo beneficiary in San Francisco Oxtotilpan (I-2):

²⁹ Small holders settled on *Ejido* and *Tierras Comunales* land, were considered in possession of important productive assets, while lacking at the same time of access to credits due to the incomplete nature of property rights that prevents them for using their assets (especially land) as collateral. For a discussion on this, refer to Chapter 4. Although the programme was due to finish in 2009, the congress passed a law in 2007 by which the programme is extended for some regions of the country.

³⁰ <http://www.presidencia.gob.mx/programas/?contenido=34632>

“All the money I received from Procampo I use it to buy fertilizer. I am one of the few doing that because my plot is very small, but if you have a bigger *milpa* the Procampo is not enough. Some decided several years ago to request the whole amount and the government help them to buy livestock. Other producers organized themselves to buy a tractor. [Private companies] gave them facilities to buy tractors, but now several of them are broken and their owners cannot afford repairing them. Some of those that bought livestock could not take care of them; many cattle died because they did not know how to take care of them. The government only help them to buy cheaper [livestock] but there was no guidance on how to take care of them. [...] Other [procampo beneficiaries] spent their money on building their houses. [...]. Some others pretend to crop the land with some plants of maize, this way they show the Procampo supervisor that they are still cropping there and do not loose the *apoyo*”

Procampo is an example of the intended multiplier effect of conditional cash transfers, where it is hoped that recipients of the programme will derive unexpected benefits by directing the cash transferred to other activities that were not included in the original design of the project. According to Sadoulet *et al* (2001:1043) “cash transfers programmes create multiplier effects when recipients put the money to work to generate further incomes. When this is the case, the ultimate income effects are multiples of the amounts transferred”. Furthermore, the cash transfers provided by Procampo were often accompanied with other programmes that included the provision and distribution of new technologies.

The mentioned multiplier effects of cash transfers play a central role on access to land-based resources, especially for smallholders more reliant on these cash sources. It is possible to argue that for some households of San Francisco Oxtotilpan, cash transfers enable them to obtain benefits from both land-based resources and other productive resources. As it will be mentioned in the following chapters, participating in a cash transfer programme facilitates villagers to make use of structural and relational mechanisms (such as access to markets or the cooperation via interpersonal relations) –see Chapter 2. However, cash transfers can also provide access to other productive resources such as technology –see Chapter 7.

Some literature about the land reform process in Mexico has shown that by ensuring access to technology for rural communities and indigenous groups the

State has overlooked other means of obtaining benefits from resources (Nuijten 2003a; Bray *et al.* 2006; Boege Schmidt 2008). For instance, the distribution of technology among indigenous groups and smallholders in rural Mexico has been seen as the ultimate way to ‘improve’ the way in which these users obtain benefits from their resources by implementing extractive activities that have been considered unsustainable by official agencies. Examples vary from the distribution of stoves for improving the consumption of timber or the distribution of genetically modified varieties of crops to maximize yields. These kinds of external interventions have faced strong resistance in some cases, to the extent that some indigenous groups in Mexico have claimed their right to use their traditional technologies. This issue will be discussed extensively during the course of the empirical chapters of this thesis; however, an important issue to note is that technology can also mediate the way in which an entire community relate with external organizations and politico-legal institutions.

4.3.1.2. Management of social property and the introduction of Procede

Among the justifications used by the Mexican Government for the introduction of the new legal framework was the need to stop rural to urban migration trends by making agriculture more profitable and by reinforcing and bolstering the notion of a *campesino* way-of-life (de Ita 2003; Brana-Varela 2005). Literature dealing with labour in rural Mexico and its relation with migration patterns shows that for rural communities the legal framework previous to the land reforms in early 1990s represented a restriction to migrate (Concheiro-Bórquez and Grajales-Ventura 2005). Their migration patterns were restricted to small periods of time, under the risk of losing their rights over agricultural plots if left uncultivated (Sandoval-Forero 2001; Nuijten 2003a). However, nowadays it is possible to be *Comunero* or *Ejidatario* without the need to either stay in the community or cultivate the plot.

The foundation of the land re-distribution pushed during the Mexican revolution (1910-1917) was supported by the motto: *la tierra es de quien la trabaja* (land belongs to those who work it). With the new agrarian law land belongs to those who can demonstrate its ownership with official certificates and titles, regardless of who works it. This situation creates changes in rural communities that touch

the household structure itself. As stated by one of the key informants at the community of San Francisco Oxtotilpan (I-3):

“Since [the Mexican Government] stopped the land provision, *Ejidatarios* and *Comuneros* here stopped giving land to other [members of the community]. If I cannot receive land from the *Ejidatarios* and *Comuneros* nor from the Government, then I have to look after my family in other ways. I have left San Francisco to find a job in Toluca. All my sons have also gone to Mexico City. If I cannot get land here, neither they can”

The community of San Francisco Oxtotilpan shares common problems with other communities in rural Mexico. From the introduction of Procede, migration patterns have intensified due to the lack of land. Migrating became a solution for many households even in possession of land; given that subsistence agriculture is not profitable, and since the new agrarian law allow people to leave the land uncultivated without the risk of losing their rights as *Ejidatarios* or *Comuneros*, people migrate looking for alternative income sources. The following chapters provide insights as to how household members rely on temporal and seasonal migration, manage to retain rights to the benefits from land-based resources.

Regarding property rights the new agrarian law also represented a major change. The programme in charge of this agrarian change was the Ejido Lands Certification and Titling Programme (Procede). In general terms, the effects of the introduction of Procede can be summarized in two issues: the modification of the certification of property rights of *Ejido* and *Tierras Comunales*, and the introduction of an individual title for agricultural plots³¹.

For the case of passing *Ejido* ownership to another heir or family member, Procede establishes that it is possible to select the inheritor of his/her choice to transmit his/her rights even out of the core family, while before the reforms it was just allowed to transmit *Ejido* rights to a next of kin heir (for instance, a son, a daughter or the wife) (Deiningner and Bresciani 2001; Brown 2007). This situation made available land that was previously owned by other family members that have permanently migrated. This way some *Ejidatarios* and *Comuneros* gained

³¹ For an extensive analysis of the introduction of Procede in San Francisco Oxtotilpan, refer to Chapter 5.

rights over larger plots than others; a process that stressed the unequal distribution of land among a fewer producers (Contreras-Cantu and Castellanos-Hernandez 2000; Chacon-Hernandez 2005). In this respect, the introduction of Procede as an official tool for certifying and validating the rights over land of smallholders, created more concentration of lands on the hands of some producers that were in possession of the land (Zepeda 2000; Chacon-Hernandez 2005; Assies 2008). One of the limitations of Procede, is therefore, that there was no maximum limit of land to be certified by a single smallholder.

Individual titling of agricultural plots contravened the idea underpinning the original land reform pushed during the revolution of 1910. Previous to the land reform of the 1990s, the whole community owned the land; however, since the new legal framework and furthermore, the Procede programme allows having a title of their lands, individual ownership is possible. The conception of land as a family resource changed to become a property of a single member of the household (de Ita 2003; Nuijten 2003a). The National Constitution, in its 27th article Fraction XV states:

“In Mexico, latifundia are forbidden. Small agrarian property is that not larger than one hundred of irrigated land or its equivalence in other type of land. To determine its equivalence one hectare of irrigated land shall be computed as two hectares of seasonal land; four of grazing land (*agostadero*) and eight as scrub land and arid pasturage (*monte*)” (Mexican-Constitution 2009).

Since the National Constitution fixed the maximum amount of land to be owned by a single person, Procede certifies the owners without taking into account the population density of the different states. While in the northern states land extensions are distributed among fewer producers, in the centre of the country the population is concentrated. The processes of subdivision of land since the first distributions of last century have caused a reduction on the size of the agricultural plots. For instance, in the State of Mexico (where the case study is located) the average size of Procede-certified agricultural plots is 1.6 hectares (INEGI 2009). The minimum amount of one hundred hectares of agriculture land per owner does not respond to the reality many communities in the rural sector face.

Furthermore, before the smallholder receives his/her certificate, Procede carries out a process of mapping of the individual plots to be certified. By 1999 70 per cent of all agrarian communities were certified by Procede; it represented a total of 54 million hectares measured and mapped –an area equivalent to the surface of the United Kingdom, Portugal, Greece, Hungary, Switzerland, Belgium and Israel together (Leonard *et al.* 2003). Studies have mentioned that the cartography produced by Procede has triggered conflicts within and even between communities over the limits recognized officially (Jones and Ward 1998; Leonard *et al.* 2003; Nuijten 2003b). Consequently, the Ministry of the Agrarian Reform (SRA –*Secretaría de la Reforma Agraria*) created the agrarian tribunals with the justification of tackling the problems that arose with Procede and any other agrarian conflict. Since the introduction of the new agrarian law, the agrarian tribunals are the official tools for attending agrarian-related conflicts.

4.3.1.3. Conflict resolution and legal pluralism

Previous to the 1990s reforms, the Ministry of the Agrarian Reform was the administrative body of the State to solve agrarian conflicts. However, with the reforms and the growing demand of academics and supporters of the neo-liberal package of policies proposed the formation of agrarian tribunals to deal with the growing agrarian conflicts (Chacon-Hernandez 2005). In the text of the initiative to modify the 27th article of the National Constitution in 1991, Carlos Salinas as President of Mexico states:

“The Agrarian Justice. In order to guarantee agrarian justice it is proposed to establish in the Constitution –Article 27th Frac. VII Agrarian Tribunals of total jurisdiction. Agrarian tribunals shall be equipped with autonomy to solve, within the norms of the law and expeditiously, the land tenure issues of *Ejidotes* and *comunidades*, the conflicts among and between them and any limit disputes” (Becerra-Ramirez 2004).

There is a central Agrarian Tribunal in Mexico City (*Tribunal Superior Agrario*) and the Regional Agrarian Tribunals (*Tribunal Unitario de Distrito*) dispersed through the whole country; however, their original purposes of solving the agrarian-related conflicts have not been achieved (Zepeda 2000; Sandoval-Forero 2001; Chacon-Hernandez 2005). One of the reasons by which this objective is not been achieved might rely on the character of the law provided by the tribunals.

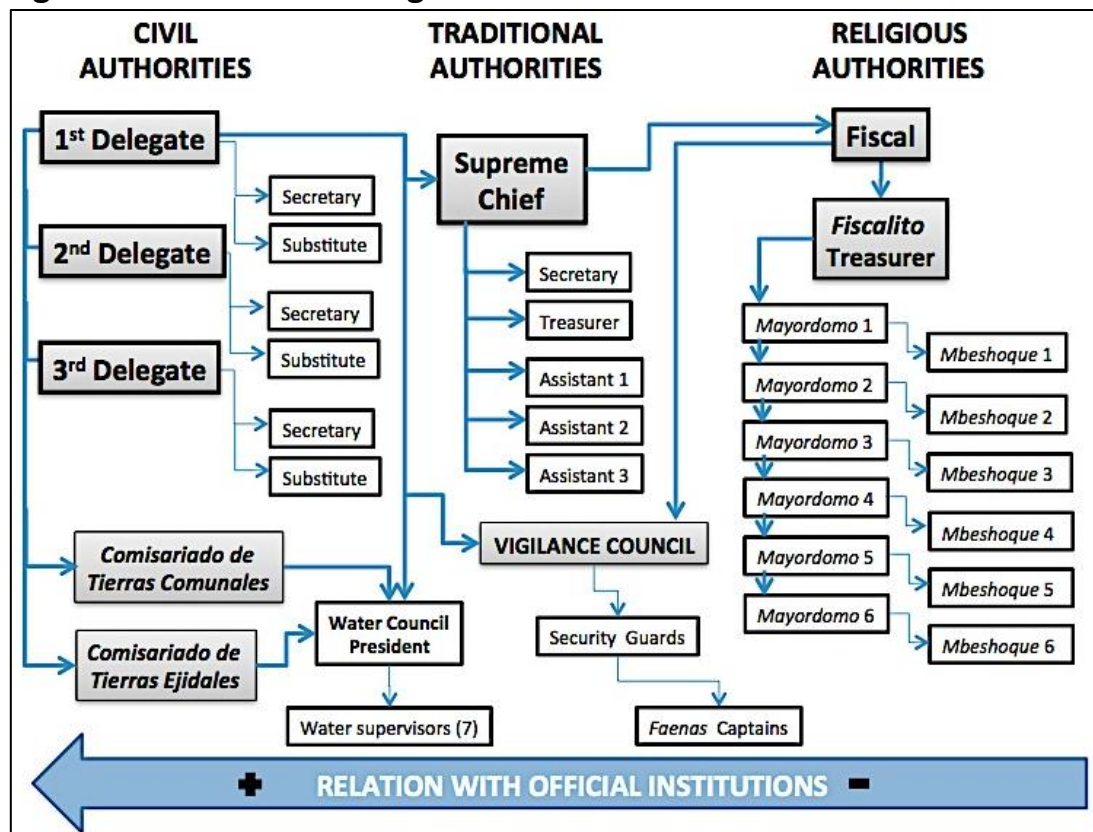
The actions taken by the agrarian tribunals to solve agrarian conflicts are put in place only under petition of the interested stakeholders. This implies that smallholders with agrarian conflicts have to invest considerable economic resources to solve their problems through Agrarian Tribunals. These expenditures are mainly related to travel costs –since the agrarian tribunals are in the capital city of each state, and often bribes to tribunals’ employees to accelerate the procedures. Even though the new agrarian law in its articles 163 and 170 makes explicit that the legal procedures offered by the agrarian tribunals are free of charge, as some villagers of San Francisco Oxtotilpan reported it, smallholders seeking to solve their problems are often forced to bribe functionaries in order to avoid or reduce the travelling expenses. This is one of the reasons by which the members of the community often prefer the authority of local governing bodies when it comes to solving land problems³².

The lack of economic resources makes exclusive the resolution of agrarian problems to those land owners with the economic resources to travel to the Agrarian Tribunals. Due to the number of procedures and the intricate bureaucratic barriers that Agrarian Tribunals offer, smallholders often prefer to solve their agrarian conflicts through local authorities based on consuetudinary legal frameworks. Since the official legislation does not take into account alternative legal frames to solve the conflicts at the community level, issues of legal pluralism often make the resolution of agrarian conflicts in the rural sector of Mexico even more complicated (Chacon-Hernandez 2005). This complication relies on the fact that from the first land reforms of the last century, the official legislation has tried to regulate the internal organization of the agrarian communities. The State established links of collaboration with community-based authorities; however, always restricting their actions and jurisdiction to what the official law establishes. Consequently, the State entered in partnership with local institutions through the “responsibilities system”. San Francisco Oxtotilpan, whose “responsibilities system” mediates the governability of the whole community and its land-based activities, provides a representative case.

³² For an extensive discussion of authority of the local governing bodies, see Chapter 5.

The “Responsibilities system” or *sistema de cargos* is the structure in which some indigenous groups in Mexico base their ability to govern themselves (Garcia-Hernandez 2004; Barkin *et al.* 2008). *Matlatzincas* have a system in which civil and traditional authorities mingle to create a consuetudinary structure of regulation, which is based on trust and the authority of those who hold higher positions in the *sistema de cargos* (Figure 4.1).

Figure 4.1. Sistema de Cargos Matlatzinca



Source: Fieldwork

There are three main authorities in the local organization of San Francisco Oxtotilpan. The importance among the *Matlatzincas* has to do with the extent in which the community members would solve their conflicts or the perceived degree of authority each governability body/representative has. In that sense, authority can be seen as the capacity of the politico-legal institutions, in this case consuetudinary, to influence other social actors within the community (Sikor and Lund 2009). Hence, for internal conflict resolution, community members recognize in their governability model a set of legitimate institutions and authorities that can provide socio-political order; sometimes more legitimate than

the official institutions of the State at the different organizational levels – Municipality, State, or Federal.

Accordingly, three delegates represent the civil authorities with their correspondent secretaries and substitutes. These delegates are the top authority in the community; they have administrative and civil duties as well as representation functions in front of the Municipality and the State. They are in charge of the conflicts resolution within the community and since the politico-legal official institutions recognize them, they also deal with the relation state-community when it comes to distribution of aid projects and resources. There are also *Ejido* and *Tierras Comunales comisariados*. They are in charge of dealing with the administration of the resources within each type of agrarian setting; their action is restricted to the activities carried out correspondingly at *Ejido* or *Tierras Comunales* lands. Hence, they have close contact with the president of the water council to convene any issues of irrigation and drinking water administration, supply and distribution.

Traditional authorities are located right in between the religious and civil authorities. Official institutions of the State and other NGOs have periodically had a close relation with the *Supreme Chief* since he has the duty of requesting material support for the rest of the community. Along with the whole *sistema de cargos* representatives, the *Supreme Chief* is elected through an assembly every three years and he has to be recognized as an elder member of the community³³. The vigilance council has relation with all the types of authorities within the *sistema de cargos*. They are in charge of the security of the whole community, by participating in patrolling, and vigilance at the traditional events or celebrations. They are also in charge of enforcing the punishments that the delegates, the *Supreme Chief* of the *fiscal* considered to the villagers that do not respect the norms. At the same time, there are *faenas captains* who belong to the vigilance council. They organize brigades of villagers to carry out common-benefit labours and tasks.

³³ Elder Members of the community are not the oldest among the *Matlatzincas*. Being ‘elder’ for the indigenous group is to have a deep understanding of the *Matlatzinca* traditions, speak the language and been considered as honourable and respected by the rest of the community.

The head of the religious authorities is the *fiscal*, who is in charge of coordinating the seven main festivities in the *Matlatzinca* calendar (each one hosted by a *Mayordomo* from each colony of San Francisco Oxtotilpan). The figure of the *fiscal* is central not only in the cultural and traditional organization of the *Matlatzinca* group, but also its productive activities. While the *fiscal* is in charge of organizing the festivities, he has the right to ask for economic support for each household at the community, and furthermore, enforce an administrative punishment when a household does not participate³⁴. Since being a *fiscal* is considered a once-in-a-life-time honour among *Matlatzincas*, it is a very privileged position within their governability system. However, for becoming a *fiscal*, it is compulsory to have participated in several positions within the *sistema de cargos*. In that respect, not only the individual willing to become a *fiscal* has to deliver a good performance in other authority positions, but his whole family has to avoid being involved in issues that could be considered inappropriate by the rest of the community. Therefore, the *sistema de cargos* structure implies the authorities to be accountable for their actions, as well as the participation from the whole community. Even when it is possible to recognize the main authorities and representatives at the community level, the decision-making process takes place at general assembly organized four or five times a year. On these often-exhausting assemblies, representatives from the three levels of authorities raise claims and expose the main problems of the community to find suitable solutions.

The *sistema de cargos Matlatzinca* is an example about a process of democratic governability that has proven long-lasting results with minimum external influence. Furthermore, it can be seen as an effort of creating alternative modernities –modern yet different ecological, economic political and cultural configurations that challenge traditional and state-led organizational perspectives (Escobar 2008).

There are two main threats to the *sistema de cargos* structure and continuity. First, the lack of recognition of the whole *sistema de cargos* within the national

³⁴ When not able to provide a monthly-based economic cooperation, households are required to ‘pay’ with *faenas* or helping out the *Mbeshoques* with other organizational tasks. The punishments can be cutting the irrigation water supply, or participate in more *faenas*.

politico-legal system has created legal conflicts that arise from the juxtaposition of both governability structures. And second, the incidence of land-related policies that often bring conflicts within the governance system of the *Matlatzinca* group. These are the issues to be illustrated in the following chapters of this thesis.

4.4. Conclusions

The introduction of neo-liberal land reform policies in the early 1990s represented a series of changes to the internal organization of agrarian communities. The case of San Francisco Oxtotilpan is not a unique case since it presents problems and issues other communities in rural Mexico face. However, the case study chosen has particularities that provide an example of the way in which the introduction of a new legal framework modify land-based activities and resources.

In general terms, this chapter shows that the process of land reform and the introduction of agrarian programmes have brought a series of consequences that were not expected in their original design. First, instead of improving the productivity of the *Ejido*, the land reform provided agrarian communities with a legal framework that allows them to legalize practices that were already common, even when considered as illegal in the previous legal frame. This situation not only modified the way in which agrarian communities are organized internally, but also the way in which these communities relate with external institutions, mainly State-based. The case of indigenous groups illustrates that agrarian communities in rural Mexico value land in other terms besides economic ones. When this simple idea is not taken into account by official politico-legal institutions, conflicts between the agrarian community and the State may arise.

Second, the neo-liberal approach in which the land reform is based dealt with property as a fixed system of rights that could be easily changed. In addition, advocates of the land reform thought of titling as the only way of increasing land tenure security. One of the main limitations of the policies introduced is that by focussing on the official side of property, and leaving aside consuetudinary forms of property, they generate an environment of conflict between the local politico-legal institutions and the State. Furthermore, instead of improving the socio-economic conditions of the agrarian sector, the new agrarian law focuses on the

creation of new agrarian institutions designed to deal with the situation of rural poverty. These institutions are classified on those in charge of distributing *apoyos*, new technologies or cash transfers to improve the socio-economic conditions of peasants in rural Mexico, and those in charge of agrarian conflicts resolution.

When it comes to solving agrarian conflicts, the early 1990s land reform created a bundle of institutions that reduced land conflicts into technical problems. The introduction of the Agrarian Tribunals created a kind of agrarian bureaucracy that based their actions on the legal security of land. However, linking the legal structures that the State provides with the complex agrarian structure of agrarian communities that offer alternative ways of ensuring land tenure security remains as a challenge difficult to achieve. This chapter offered a review that sheds light into how the failure to understand local complexities of access led to unintended and undesirable consequences. The following chapters provide a better understanding of these issues in more detail.

CHAPTER 5. PROPERTY AS A MECHANISM OF ACCESS TO LAND-BASED RESOURCES.

5.1. Introduction.

When it comes to obtaining benefits from resources, the first issue that arises is who owns the resources in question? As mentioned in the previous chapter, the article 27th of the National Constitution states that natural resources belong to the nation. This statement implies that based on its legal apparatus, the State is allowed to restrict who and how benefits can be obtained from these resources. On the other hand, local communities claim their right to use and manage land and land-based resources according to their consuetudinary law or social conventions. In this way, property becomes the starting point for disputes over access to land-based resources.

Property is a concept that needs special attention. Following the analytical framework proposed by this research, property is defined as “... a right in the sense of an enforceable claim to some use or benefit of something” an ‘enforceable claim’ is one that is acknowledged and supported by society through law, custom or convention” (Ribot and Peluso, 2003:155). Hence, this chapter provides evidence of how different authorities (both State-based and local consuetudinary authorities) sanction property in different, and often contesting ways. The flow and distribution of benefits from land-based resources is therefore shaped by the different sets of duties and rights that this differentiated recognition of property entails.

Furthermore, property frames conflicts around land-based resources not only between the local agrarian community and external institutions, but also within the agrarian community at the household level. Property is therefore, used by a wide array of social actors to support their interests and agendas. This implies that different social actors choose the authority that supports better their property

claims. Furthermore, land-based resources may be accessed through mechanisms that are not sanctioned neither by official nor consuetudinary law nor social convention or custom. That is the case of illegal forms of access; and other mechanisms that are considered as structural and relational mechanisms or other productive resources besides land-based activities.

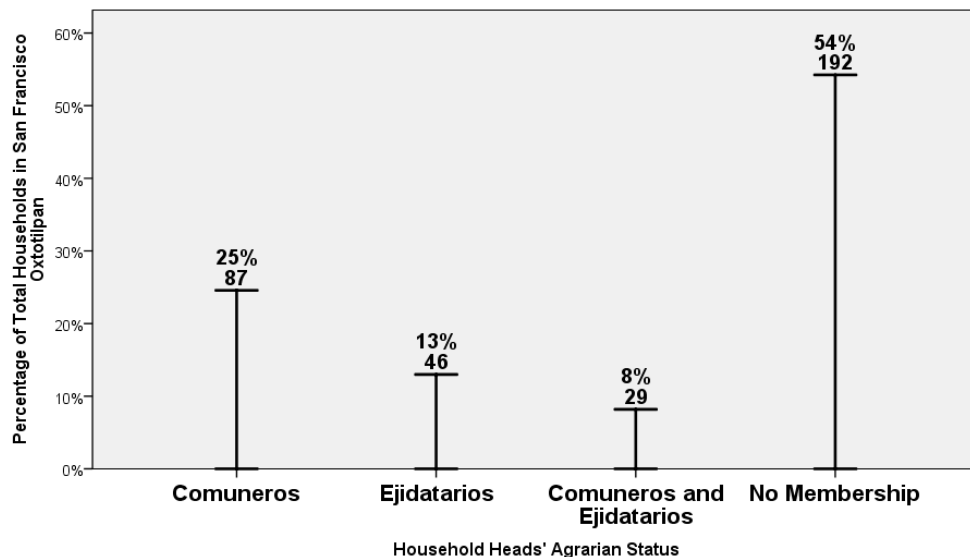
This chapter highlights the role of property as an access mechanism. It deals with the way in which contesting ideas about property can lead to conflicts at the local level and how property becomes the claim by which both official and consuetudinary authorities seek legitimacy upon land-based resource users. The conflicts that arose from the introduction of the land titling programme (Procede) in San Francisco Oxtotilpan are used to illustrate how different ways of legitimizing property can shape who benefits and how they benefit from land-based resources. Furthermore, this chapter highlights the role of Procede and other land policies to allow groups of households to create local elites that concentrate the distribution of benefits from resources.

To achieve these goals, this chapter is divided as follows: section 5.2 provides an explanation about the distribution of land-based resources in San Francisco Oxtitlan, as well as the classification of community members according to different property claims over land-based resources. Section 5.3 focuses on the conflicts between different politico-legal institutions both at the State and the agrarian community levels. It looks at the way in which property claims are sanctioned by these authorities and how different governance bodies (the State or local consuetudinary authorities) tend to legitimise the property claims of the agrarian community members. Section 5.4 illustrates the role that property plays as a mechanism used by members of the community to obtain benefits from land-based resources. Section 5.5 includes the concluding remarks of this chapter.

5.2. The Property of Land-Based Resources in San Francisco Oxtotilpan.

Land reform in Mexico has brought profound changes in the socio-political organization of *Ejididos* and *comunidades* in rural Mexico. For the case of rural Mexico, the most straightforward differentiation of members relates to land ownership; hence, the members of an agrarian community can be *Comuneros*, *Ejidatarios* or *Posesionarios* and *Avecindados*³⁵. Agrarian status not only constitute one the main characteristics that provide social differentiation, but also define the type of property claims that individuals can assert. As this section shows, being included in one of these groups deeply affects the distribution of benefits from land-based resources. Furthermore, this agrarian classification also frames the identity of each community member in San Francisco Oxtotilpan. For instance, having an *Ejidatario* as household head entitles the members of the household to a series of property claims that are exclusive for this agrarian status. Both State institutions and local governing bodies alike endorse this set of property claims. The next figure shows the distribution of agrarian groups in San Francisco Oxtotilpan according to *Dataset 1*, this implies that all the households of the community are considered in the graphic:

Figure 5.1. Distribution of agrarian categories of households in San Francisco Oxtotilpan.



Source: *Dataset 1*

Total households in San Francisco Oxtotilpan: 354.

³⁵ For a definition of each group, refer to chapter 4.

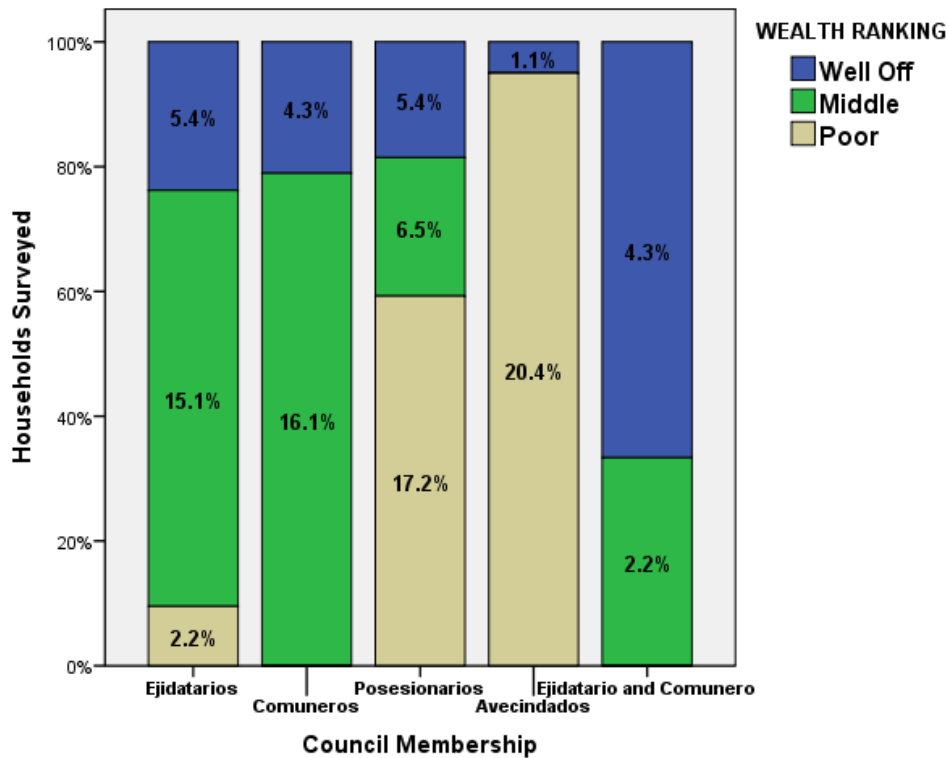
The community of San Francisco Oxtotilpan is divided into *Ejido*, managed by *Ejidatarios* (13%) and *Tierras Comunales* whose resources are administered by *Comuneros* (25%). These groups have privileged access to resources since they concentrate a series of productive resources activities and their consequent economic benefits. Hence, *Ejidatarios* concentrate legal wood extraction in *Ejido* land and *Comuneros* the profits from legal wood extraction, mining and the administration of a gas station in *Tierras Comunales*. The profits obtained from these activities are divided and distributed two or three times a year³⁶. According to the original archives from the National Agrarian Registry, in 1935, when the federal government expropriated the lands of the *hacienda* La Gavia to be distributed to the surrounding communities including San Francisco Oxtotilpan (RAN 1945), villagers in possession of agricultural plots were asked to sign up as the new *Ejidatarios*; the same process happened with the group of *Comuneros*, but 32 years later in 1967 (RAN 1968). When the federal government organized the restitution of *Tierras Comunales* in 1967, some villagers that signed up as *Ejidatarios* in 1935, were included in the list of new *Comuneros*. For to this reason, some villagers hold both *Ejidatario* and *Comunero* certificates at the same time. Even though they represent the smallest group (8%), they have access to the revenue produced by both *Ejido* and *Tierras Comunales*. According to Figure 5.1, Villagers without membership (*Avecindados* and *Posesionarios*) represent the largest group 54% of the total number of households. Although they do not obtain any benefit from the activities carried out by *Ejidatarios* and *Comuneros*, they share a set of responsibilities in order to access communal land-based resources such as grazing land or forest products from the *Ejido* land, or construction materials from the *Comuneros* mine; as well as water for irrigation and other services.

In order to better understand the importance of the agrarian structure when it comes to the distribution of benefits from resources, it is necessary to relate the wealth position of each agrarian group of San Francisco Oxtotilpan. The distribution of wealth among the members of the different agrarian categories of

³⁶ The analysis of the importance of these profits for household income and wealth is assessed in Chapter 6 and 7.

villagers, provide insights as to whether belonging to any of these agrarian categories implies having more benefits from land-based resources. Figure 5.2 shows the distribution of wealth among the different members of the agrarian groups.

Figure 5.2. Wealth ranking by council membership



Source: *Datasource 2*

Sample: n=93 (26.3% of total households).

The most notable aspect shown in figure 6.4 is that the villagers holding *Comuneros*, and both *Ejidatarios* and *Comunero* rights do not have members considered as ‘poor’ according to their wealth. This might respond to the organizational structure of *Comuneros*, which compared with the *Ejidatarios*, relies on more diversified access to resources. One of the arguments raised in a focus group discussion with *Ejidatarios* was that the group of *Comuneros* have better wealth conditions because of the resources they can obtain profits from. While *Comuneros* receive the revenue from supervised wood extractions, the management of a gas station, and mining activities, *Ejidatarios* receive benefits from periodically supervised commercial wood extractions. However, the benefits are not only economic, but in terms of access to labour opportunities. Hence,

Comuneros can participate actively in these activities by letting members of *Comunero* households to be employed in the gas station or the mine, helping out on the general wealth condition of the entire household.

The group that concentrates the most number of villagers considered to be ‘poor’ is *Avecindados*³⁷. This figure reveals that the agrarian structure of the village restricts *Avecindados* and *Poseesionarios* from the distribution of benefits from land-based resources, even though they are entitled to live and work in the community. As mentioned by one of the participants at a focus group directed to *Avecindados* and *Poseesionarios* (FG-4):

“[...] at least [*Poseesionarios*] have land to cultivate; we as *Avecindados* do not have any other choice but to work as a *peon* here in San Francisco or in [the nearby villages] or migrate to Toluca or Mexico City to be better [...] *Comuneros* help us with construction materials from the mine, and *Ejidatarios* would let us take the remaining wood when [supervised wood extractions] are done, but that is all we get from them [...] still we need to cooperate for the church or in *faenas* as all the rest”

Obtaining benefits from natural resources involves a complex set of access mechanisms that are put in place by different individuals, actors or groups of people. The previous quote shows that the agrarian structure allow *Ejidatarios* and *Comuneros* putting in practice these mechanisms and ultimately decide whether the benefits obtained are distributed among their own group or not.

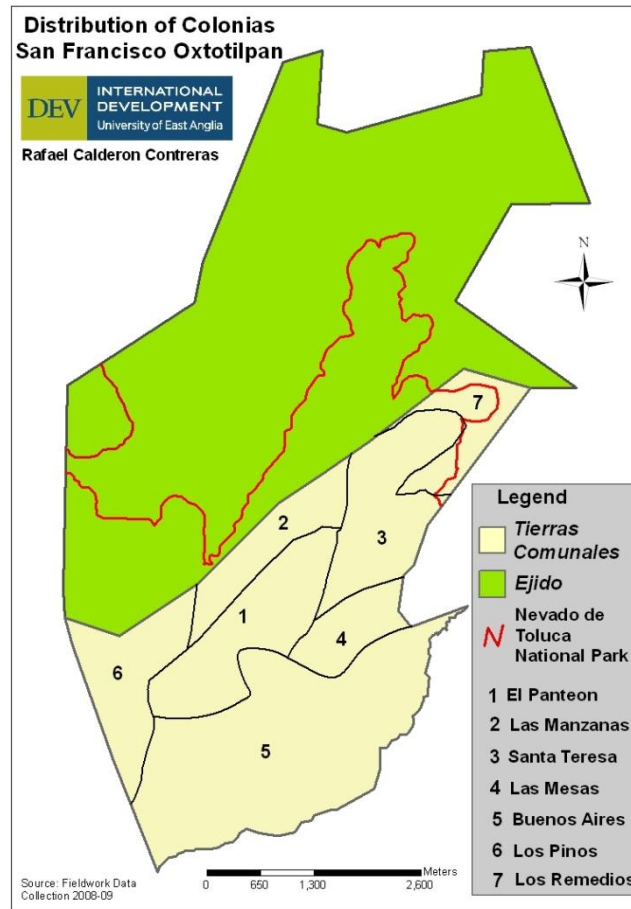
Ejidatarios and *Comuneros* constitute powerful groups that gain, maintain or control resource access, positioning themselves higher in the wealth ranking while at the same time, subjugating other users to a limited access to resources. For the case of *Ejidatarios* or *Comuneros* in San Francisco Oxtotilpan, this differential access is provided by the fact that both official and consuetudinary institutions recognise the legitimacy of these groups’ property claims. However, property, either officially or customarily sanctioned cannot constitute the only mechanism by which individual households can move from one wealth category to another. When lacking of rights-based mechanisms of access, *Poseesionarios* and

³⁷ *Avecindados* and *Poseesionarios* together concentrate the 37.6% of the whole villagers considered to be in the ‘poor’ category. Assumptions about holding *comunero* or *ejidatario* rights start to arise, however, this chapter will deal with the role of property in access to resources in section 6.3.

Avecindados can rely on other mechanisms (for instance structural and relational) to obtain both material and non-material benefits.

As it will be illustrated in the next subsections, *Ejidatarios*, *Comuneros*, together with the local authorities set a series of duties onto the community members (including *Posesionarios* and *Avecindados*) to keep access to land-based resources; in other words, to recognize their rights over land. These duties can be divided into two types: administrative-based and labour-based responsibilities. Administrative-based tasks are more related to the assistance to meetings regarding specific issues, such as irrigation, vigilance, water supply, or for traditional festivities organization. Another administrative task is the attendance at *Comuneros* or *Ejidatarios* assemblies, as well as the general community assembly every three to four months. Labour-based tasks are more related to helping out in *faenas*, wildfire mitigation and controlled burns of forest (organized and supervised by official institutions), reforestation, irrigation channels and road cleaning, etc.

Family dynamics as well as inter- and intra-household relations depend on their physical dispersion within the community. Even though the socio-economic conditions vary from household to household, there are shared traits that reflect the way household members are inter-related and the different types of benefits that the community can obtain from the resources available. San Francisco Oxtotilpan is divided in two different territories according to the land tenure status: *Ejido* and *Tierras Comunales*. While the majority of forest and grazing land is located on the *Ejido*, the main agricultural production and human settlement is concentrated in seven *colonias* spread around the *Tierras Comunales* (See Map 5.1).

Map 5.1. Distribution of *colonias* in San Francisco Oxtotilpan

The *Dataset 1* shows that there are 354 households in the whole community. Within the *Tierras Comunales* various plots were devoted to grazing land and forest purposes and for the usufruct of the whole village. Consequently, the criteria of distance to land-based resources is not relevant, since all the household in the village have to look for collecting specific resources in different places; e.g. mushroom, timber wood, medicinal plants etc, are collected in the communal forest in both *Ejido* and *Tierras Comunales* (See Map 3.2 in Chapter 3). Hence, households obtain benefits from a wide set of land-based resources. For the purposes of the analysis of this research, the available land-based resources were divided into three different categories of land: forest, grazing, and agricultural land.

5.2.1 Forest Land

As shown in Map 5.1, San Francisco Oxtotilpan is partially located within the protected area of the Nevado de Toluca National Park (NTNP), which includes all land above 3000 m.s.l. The situation of forest resources in the national park has been studied widely to extent that the forest types have been categorised with relative precision (Villers Ruiz *et al.* 1998; Mariaca Mendez *et al.* 2001; Franco Maass *et al.* 2006; Candeau Dufat and Franco Maass 2007); the predominant vegetation in the NTNP are conifers, containing oak (*Quercus, spp.*), oak-pine (*Pinus pseudostrobus*), pine (*Pinus ayacahuite, Pinus pseudostrobus*) and pine-cedar (*Cedrus spp.*). The forest can also include mixed broadleaf/needleleaf species with pine-fir (*Abies Spp.*) alpine grasslands and secondary vegetation associated with bushes and induced grassland (Franco Maass *et al.* 2006; Endara Agramont *et al.* 2009). It is relevant to highlight that in the NTNP it is possible to find the highest altitude pine (*Pinus hartwegii*) in the world (*Ibid.*). San Francisco Oxtotilpan is located in what has been defined as the origin of the Balsas river basin, one of the largest in Mexico; more specifically at the origin of the Cutzamala sub-basin, which is Mexico City's main fresh water provider (Rojas Merced *et al.* 2007).

5.2.2 Grazing Land

Grazing land is difficult to define since the plots devoted for this activity are not exclusively planned as such. The characterization of grazing land does not mean either that this activity is exclusively carried out in grazing land plots. Forest and even idle agricultural land is used for grazing as well. For the purposes of the analysis of this research, grazing land is characterized as the plots nearby to forest that are mainly located on communal lands. These plots could be abandoned agricultural plots, or degraded forest.

Access to common grazing land is an important part of the livestock production system of San Francisco Oxtotilpan especially for landless producers during the wet season. They have the chance of grazing their livestock in these areas, while those villagers that produced fodder can feed them down in the valley. There are some examples of transhumance among landless households. Their lack of agricultural land implies not having fodder from the crops forcing them to

seasonally move their herds according to grass availability; however, in order to use grazing land that is considered communal, community members have to fulfil the requirements of the local governing bodies.

5.2.3. Agricultural Land

The distribution of agricultural land among *Matlatzincas* is highly complex and subject to conflicts and social arrangements. The whole *Matlatzinca* life is organized around the agricultural land and its cycle. The basic division of agricultural land in the community corresponds to its irrigation condition. Each colony has a well-organized committee in which the irrigation turns are set up according to the extension of land and labour availability of each household. The table 5.1 shows the distribution of agricultural land according to its irrigation situation.

Table 5.1 Distribution of agricultural land according to its irrigation condition^a

	Number of Plots	Average number of plots per household
Number of Irrigated Plots	108	1.2
Number of Rain-fed Plots	164	1.8
Total	272	
	Total Hectares	Average size of the plot (In Has.)
Irrigated Area (Has)	59.4	.6
Rain-fed Area (Has)	103.2	1.1
Total	162.6	

a. Source: *Dataset 2*

Sample n= 93

The analysis of the sample shows that the irrigated plots, as well as the irrigated area are smaller than the rain-fed surface. This can be explained from the actual land distribution among users and their geographical position; rain-fed plots are mainly located on high slopes without access to the intricate gravity-powered irrigation network while irrigation plots are mainly located down in the valley, close to irrigation channels. Irrigated plots are located more closely to the human settlement, the land subdivision has been more intensive, resulting in smaller plots (average = 0.6 Ha) than the rain-fed plots (average = 1.1 Ha). These figures contrast with the national figures that mention that the average size of irrigated

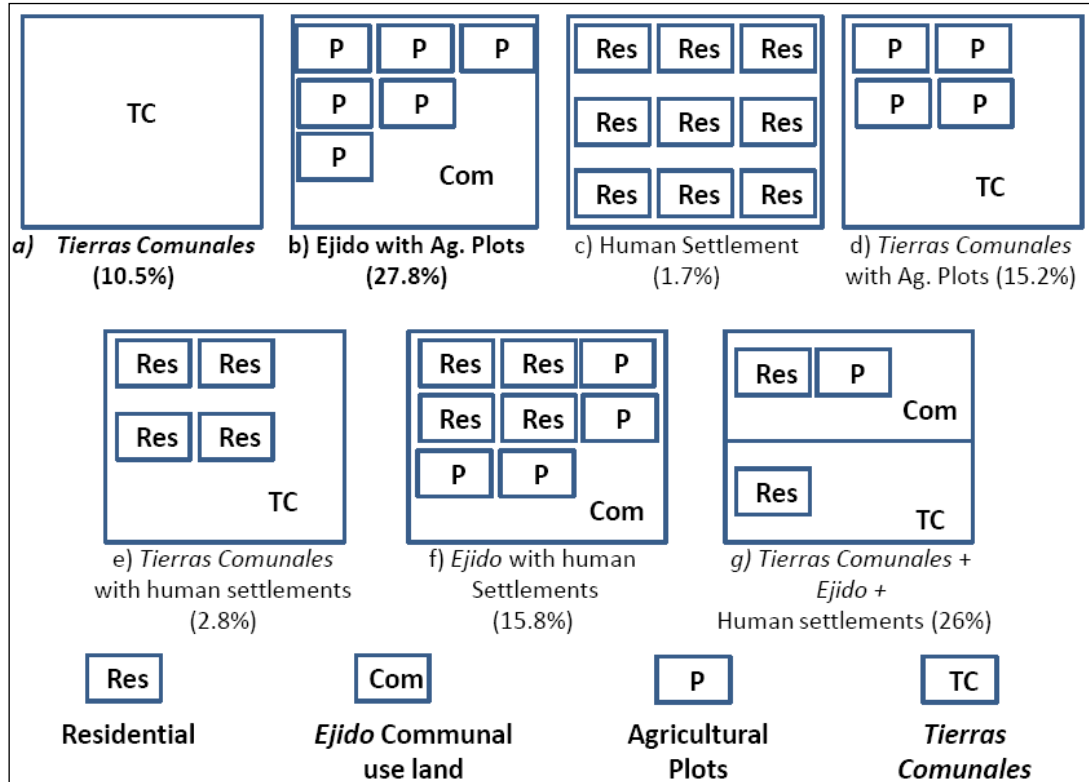
plots by producer is 8.4 Ha, and 7.3 Ha for rain-fed (INEGI 2007). The figures shown also contrast with the means for the State of Mexico, which are, for irrigated and rain-fed plots 1.6 Ha and 2.2 Ha accordingly (INEGI 2009). Both the irrigated and rain-fed surface per household is smaller than the national and State figures, which means that the processes of land subdivision have been remarkably intense. This process of land subdivision has been found as one of the main problems of the rural smallholders in Mexico (DiGiano *et al.* 2008; Barnes 2009). It has been found that this situation permeates not only the physical distribution of land and the production of different crops, but also the actual organization behind agricultural production in the rural sector (Mariaca Mendez *et al.* 2001; Barnes 2009). The role of the interplay between different politico-legal institutions and the conflicts that arise from different property claims over these resources in a context of legal pluralism have deep implications on the distribution of benefits from land-based resources. This section illustrated two main issues, the distribution of land-based resources in San Francisco Oxtotilpan and the agrarian status of its inhabitants. The former is subject to property claims sanctioned differently by a set of both official and consuetudinary institutions. The latter is a result of the land reform process explained in the previous chapter. The following section deals with the conflicts that arise from the differential sanctioning of property claims over land-based resources.

5.3. The State vs. the community: Who sanctions property claims?

Understanding the local administration of resources in the rural context of Mexico requires the analysis of a wide range of organizational and socio-political networks. As shown in the previous chapter, the early 1990s land reforms brought complex modifications in these structures since local politico-legal institutions and elites were endowed with the legal means to consolidate and extend their power and authority (de Janvry *et al.* 2001; DiGiano *et al.* 2008). Therefore, different politico-legal institutions (State-based agencies and local governing bodies) changed the way in which they are interrelated in terms of property claims. These changes are closely related with the land certification carried out in early

1990s through the implementation of Procede. Figure 5.3 shows the different types of land certification carried out in the country by Procede.

Figure 5.3. Types of land certification in Mexico.



Source: Based on (PROCEDE 2007). Cases a) and b) were the actions taken by San Francisco Oxtotilpan. Numbers in brackets represent the percentage of each action taken from the national certification programme.

Between 1993 and 2006 Procede certified 91.3% of the total agrarian units of Mexico, applying a new set of legal norms to those *Ejidatarios* and *Comuneros* that participated in the programme (PROCEDE 2007). The majority of rural communities found themselves within one of the structures illustrated in Figure 5.3. The case of the *Matlatzinca* indigenous group constitutes one of the few examples in Mexico of a single community that included two different types of certification: the *Ejido* members –*Ejidatarios* decided to register their agricultural plots to obtain individual certificates (case b) in 1996 and *Tierras Comunales* members –*Comuneros*, decided to register the boundary of the whole communal land (case a) in 2001. Hence, the community of San Francisco Oxtotilpan got divided into two sections: the *Ejido* and the *Tierras Comunales*.

As mentioned elsewhere, the division of the land available brought as a consequence the formation of two different governing bodies: the *Ejido* and the *Tierras Comunales* council. While on the *Ejido* lands only agriculture and forest activities are carried out, human settlements, and the mine are located on the *Tierras Comunales* section³⁸. Before the participation of *Comuneros* in the land certification programme it was agreed on a village assembly that Procede would certify neither human settlements nor agricultural plots within the boundaries of *Tierras Comunales*. This responded to the fact that *Tierras Comunales* is not exclusive for the use of *Comuneros*; the rest of the villagers are settled and even have agricultural plots without necessarily holding certificates. The agreement included that the administration and benefits derived from supervised logging in the *Ejido* forest belong to *Ejidatarios* while the administration of the mine and the gas station located on *Tierras Comunales* (and the profit derived from them) would be exclusive for *Comuneros*.

Previously to their participation in Procede, the community used to have a single assembly where the common interest disputes were elucidated. After the implementation of the land policies, both *Ejidatarios* and *Comuneros* considered that it was necessary to organize assemblies apart from the general village assembly to discuss issues that directly involved their members. Members of *Tierras Comunales* and *Ejido* councils increased their legitimacy for of State institutions by participating in Procede, and also by being recognized as members of either council. Furthermore, Procede referred to those community members in possession of agricultural land but without holding a certificate as *Posesionarios*, while those with neither agricultural land nor land certificates were referred as *Avecindados*. *Posesionarios* and *Avecindados* are excluded from benefiting from the profit produced on commercial activities carried out by both *Comuneros* and *Ejidatarios*; however, they are considered legitimate members of the community. This is supported by the fact that they have the right to participate in general

³⁸ In 1928 the Nevado de Toluca was defined as National Park and its boundaries included an important portion of the *Ejido* of San Francisco Oxtotilpan. During the period of first land distribution in Mexico (1934-40) *Ejidatarios* in San Francisco Oxtotilpan received official certificates for their individual agricultural plots. The *Ejido* communal use land got restricted to the lands within the national park (See case b on Figure 5.2).

assemblies, but also duties to fulfil in order to obtain the benefits of belonging to the community. One of the participants at a focus group with *Avecindados* and *Posesionarios* stated (FG-4):

“I do not care if the government does not recognize us [by the provision of a land certificate for *Posesionarios*]. I receive my plot from my father; he is an *Ejidatario*. The most important for me is to participate in *faenas* so I can have drinking water and water for irrigation, and to cooperate with the church to participate in the [religious celebrations]. If I go up to date with my responsibilities I do not have any problem with [the village]. [...] Anyway, the whole community knows that that plot is mine, no one can take it away from my family, even if I do not have any document to prove it”

The case of *Posesionarios* demonstrates that social actors might derive benefits from land without having State-sanctioned property rights. Furthermore, non-State institutions provide legitimate property rights based on the fulfilment of requirements and duties imposed to land holders. It would be possible to consider that *Posesionarios* do not have access to land through a State-sanctioned property right; however, they prefer the local politico-legal institutions over the State to legitimize their possession of land. In other words, claims over property are used by actors without access to resources as the mean by which they make legitimate their needs in front of a politico-legal institution (Broegaard 2009). Different politico-legal institutions have diverse sets of duties to legitimize actors' property rights. In order to grant legitimate rights over the land, the community's institutions require *Posesionarios* to participate in *faenas* while the State requires them to certify their plots through *Procede*, changing their status into either *Comuneros* or *Ejidatarios*.

5.3.1 Property and legal pluralism in San Francisco Oxtotilpan

When it comes to property of land-based resources, there are two different legal frameworks sanctioning the property claims of the villagers of San Francisco Oxtotilpan, the official legal framework (represented by State authorities), and the consuetudinary law (represented by local governing bodies). The Ejido and Tierras Comunales councils constitute local governing bodies, while State authorities are those agencies dealing with land affairs. Local governing bodies

rely on consuetudinary norms, while State institutions are based on official statutory law. The conflicts that arise between these different legal frameworks can be illustrated from an empirical example:

When married in 1980 Juan Esparza³⁹ received three plots of land from his father, a recognized member of the *Ejidatarios* group in San Francisco Oxtotilpan. In 1994 the Ejido council recognized Juan Esparza as *ejidatario*. At the time of his recognition by the local council, he participated in the land-titling programme (Procede), stating in his official certificate that his wife would be the heir of his official rights over the certified land. Soon after, Mr Esparza died, leaving his wife as the land rights holder. The official land reform institutions recognized Mrs. Esparza as the landowner; however, the local council did not recognize her as member of the *Ejidatarios*. Mrs. Esparza could work the land, participate in official land-related programmes, but could not benefit from being a recognized *Ejidatarios* member. These benefits are related to voting rights in assemblies and receiving the proportional economic benefits derived from *Ejidatarios* activities such as supervised loggings. The *Ejido* council requested her to participate in *faenas*, vigilance and cleaning campaigns as partial requirements for her to be recognized as *ejidataria*. Although the official certificate entitles her as member of the *Ejido*, the local council demanded her other requirements to be considered as such. After three years of her husband's death, Mrs. Esparza finally got accepted as member of the *Ejido* council.

There are several conclusions to be drawn from this example and from other similar cases observed in the community. The most straightforward issue to be highlighted is the separation between the authority exerted by the official State-based institutions and local authorities. As it is explored in this thesis, access to land-based resources involves the physical land use; a combination of practices and values of the users (Madsen and Adriansen 2004). Accordingly, both practices and values are mediated by norms made by State and non-State groups (*de jure* and *de facto*). *De jure* processes involve the execution of power through access to property relations enforced by law while *de facto* processes are based on consuetudinary law or social convention. *De facto* processes also include extra-

³⁹ Pseudonym.

legal mechanisms of access⁴⁰. This situation implies that both State and local authorities hold different roles in the administration and governability of land-based resources; in other words, official and consuetudinary institutions are in permanent disputes over authority and legitimacy. These disputes have also been categorized as issues of legal pluralism (Sikor *et al.* 2008).

Notions of legal pluralism play a central role in understanding the distribution of authority relations around natural resources management (Gwynne and Kay 1997; de Janvry *et al.* 2001; Sikor 2004; Chimhowu and Woodgate 2006; Akram-Lodhi 2007; Kay 2007; Sikor *et al.* 2008). Legal pluralism is, therefore, a fragmentation of authority (Ribot 2004). Legitimacy and authority are then distributed among both official and local politico-legal institutions, and the linkages between them and the local community are shaped by accountability relations (Newell and Wheeler 2006; Bovens 2007). Both official and consuetudinary institutions can sanction productive activities through the exercise of legitimacy; in other words, social actors are accountable to politico-legal institutions or authorities according to a consensus that recognizes any given authority as legitimate. For instance, from observations in the *Matlatzinca* community, it is possible to notice that *Ejido* and *Tierras Comunales* councils are accountable for *Ejidatarios* and *Comuneros* respectively, and that these councils are to some extent, accountable to official authorities at several administrative levels of the State.

It is interesting to acknowledge that given the fact that legal pluralism is basically the interaction of two different legal frameworks; problems arise when there is not coincidence when sanctioning in the same way a productive activity. Accountability, however, is not the only factor in which different sets of norms can coexist. Hence, when it comes to access to resources through claiming property rights over them, accountability frames the authority that can or cannot maintain or control resource access. Therefore, accountability provides the very

⁴⁰ For the purposes of the analysis in this chapter, *de jure* will be related with norms and duties expressed by official institutions' legislation, while *de facto* will be linked with rules and norms not included in the official law but enforced by local authorities. Although Ribot and Peluso (2003) acknowledge the rules and norms established by local institutions as *de jure* processes – since they also are included in consuetudinary legal frameworks, this research separates this categories to better understand the politics behind property as a mechanism of access to land-based resources.

means by which sectors of the society would legitimize the action and validity of both official and consuetudinary authority sets. For instance, the case of Mrs. Esparza shows that even though the official institutions' authority is recognized by the fact of accepting the land certificate as a valid mean to demonstrate ownership, she needed to fulfil other requirements imposed by the local authorities to obtain the benefits of belonging to the *Ejido* council. Mrs. Esparza is accountable to the local governing bodies (in this case the *Ejido* council) in order for her to legitimize her property claim. Although the certificate issued by the Land Reform Ministry (RAN) officially recognizes her as *ejidataria*, the local authority has the capacity to administer not only the resources themselves, but also who gets access and who is excluded, regardless of their official status. The enforcement of property rights implies, consequently, different legitimacy and capacity degrees of different sets of authorities (Berry 1989; Ribot and Peluso 2003; Sikor 2004; Pahl-Wostl 2009).

Another issue to be highlighted from the example provided illustrates that property involves a series of rights and duties. Mrs. Esparza obtained official property rights by receiving the land certificate, but in order to be accepted as a member of the *Ejidatarios* group, she had a set of duties to fulfil. The *Ejidatarios* council then provide her with consuetudinary property rights by her recognition as a member of the *Ejido* council. Before Mr. Esparza obtained the official land certificate (official property rights) and even before Mrs. Esparza got recognized as member of the *Ejido* council (consuetudinary property rights), the household was allowed to work their land, and use the resources available communally. This fact supports the idea that "Property is not the only way by which social actors are able to benefit from resources. Access, by contrast, is broader and includes property" (Sikor and Lund 2009:4). Property is, therefore, a mechanism used by households, State and consuetudinary institutions to gain, control or maintain access to resources (Ribot and Peluso 2003).

It would be easy to state that given that the local *Ejido* council in San Francisco Oxtotilpan has the capacity of including and excluding community members regardless of their possession of officially certified land, the authority of the local governance bodies is superior in practical terms than the one of official land-

related institutions. However, property claims are put in practice to obtain different sets of benefits from resources. And in the same way in which different actors compete to legitimize their claims as property, different institutions exert different degrees of authority to influence the resource users (Sikor and Lund 2009). Furthermore, authority plays a critical role on the formation and the implementation of property relations (von Benda-Beckmann 1995; Nyamu Musemy 2007). According to Sikor and Lund (2009:9) “Property relates to authority because property claims require support by politico-legal institutions in a position of authority”. Hence, different institutions at any administrative level – official or customary, will have different capacities and will sanction the actors’ claims over property accordingly to their different level of authority (von Benda-Beckmann *et al.* 2001; Sjaastad and Cousins 2009; Toulmin 2009).

Authority, therefore, is distributed across all institutions governing land-based resources. This division sometimes creates conflicts and problems between different politico-legal institutions. Consequently, it is possible to argue that local institutions can conflict with official institutions. Having San Francisco Oxtotilpan three different consuetudinary institutions, there could be conflicts related to property between consuetudinary institutions. On that respect, a representative of the *Ejido* council mentioned (I-1):

“Sometimes we [*Ejido council*] have some problems with the traditional [religious] council or with the *Comuneros*, when we cannot solve our problems, we bring the case to the general assembly, where all the village can find a resolution; even *Avecindados* or *Poseesionarios* can give their opinion if the conflict involves the whole community. However, most of the times we can solve our conflicts among ourselves”

The case of the *Matlatzinca* indigenous group provides an example of how property and authority relations work at the grassroots level; not only for the diverse set of institutions participating in the administration of local resources and their benefits, but also because of their different levels of authority and accountability relations that villagers use to relate to each institution. When it comes to property claims, the conflicts between official and consuetudinary legal frameworks relies on the way in which State politico-legal institutions and local

governing bodies have different legitimacy in front of their constituents. This conclusion is illustrated empirically in the following subsections:

5.3.2 The legitimacy of State-based institutions

Legitimacy has been the battlefield of contestations between central and local authorities (Reid 1999). As mentioned elsewhere, legitimacy empowers different authorities to superimpose their functions and domains in front of their constituencies. Furthermore, the nature of central and local authorities' legitimacy, vary according to the functions and activities that these authorities perform on behalf the community. Property plays a central role in the creation, expansion and consolidation of the legitimacy of central and local authorities. By recognizing and authorizing property rights, different politico-legal institutions have different degrees of legitimacy and authority (von Benda-Beckmann 1995; Sikor and Lund 2009). Furthermore, "Institutions will generally seek to legitimize their exercise of power with reference to law, or custom, precedence, or propriety, or administrative expediency" (Sikor and Lund 2009:13). Therefore, while local governing bodies seek legitimacy over the members of the agrarian community by exercising the sets of norms and rules acknowledged by custom or convention (consuetudinary law), State-based politico-legal institutions seek legitimacy by making reference to the official law. Accordingly, the first paragraph of the article 27th of the Mexican Constitution states:

"The property of the land and waters inside the borders of the national territory is originally owned by the Nation, who has the right to transfer this ownership to particulars, constituting the private property. [...] The Nation will have always the right to impose private property according to the public interest, as well as the right to regulate, for social benefit, the use of natural elements susceptible to appropriation with the objectives of the equitable distribution of the public wealth, conservation, achievement of an equilibrated development and to improve the living conditions of the rural and urban population" (National Constitution, Article 27. *Emphasis on the modifications inserted on its amendment on January 1992*).

Through the modification of Article 27 in 1992, the Mexican State seeks to legitimize its authority on the grounds of property over natural resources. The right to provide property rights is a capacity made exclusive for the Mexican State.

This way, the State consolidates and expands its authority to endow with property rights the users of natural resources. Furthermore, the State reserves for itself the right to allocate ownership to individuals. This implies privatizing land on behalf of ‘the public interest’. This aspect of the land reform has brought an accelerated shift towards the privatization of agricultural land in northern Mexico (Lewis 2002)⁴¹.

Together with the legal modifications, the implementation of a new agrarian law took place. This agrarian law provided the means by which local communities would be able to solve land disputes ‘by themselves’; however, always ‘supported’ by the recently formed Agrarian Tribunals (Zepeda 2000). The process stated that once a problem was solved by assembly agreement; generally related to disputes over plot boundaries, the Agrarian Tribunals would act to legally recognize and sanction the dispute (Contreras-Cantu and Castellanos-Hernandez 2000). Although also with legal capacity to intervene directly in the solution of local disputes over land, the Mexican legal system provided the illusion of self-regulation. Hence, official politico-legal institutions supported the figure of the assembly as the ultimate way in which local communities would solve their problems. The idea was to let the community to take decisions about their resources in a general meeting that included all its members. However, the State was allowed to intervene in these assemblies when the conflicts were related to issues of public interest. When interviewed about the role of the agrarian communities’ assemblies in the provision of land certificates an officer from the Ministry of Agrarian Reform stated (I-4):

⁴¹ Another notable example of the conflicts between indigenous groups and the State is the effort from the federal government to expropriate and privatize an entire *Ejido* for the construction of a new international airport for Mexico City in 2002. After a series of violent confrontations, the community of San Salvador Atenco organized a resistance movement called the Community Front in Defence of Land –*Frente del Pueblo en Defensa de la Tierra*, that grew fast in adepts and was supported by other indigenous movements, including the Zapatista Army for National Liberation (EZLN) from Chiapas. The federal government finally desisted in 2007 to construct the airport after a series of violent clashes and uprisings.

“All communities that wanted to participate in *Procede* needed to have an assembly. All the decisions were taken there, however, during the first stages of *Procede* we sent agents to talk to people in those assemblies and explain them the benefits of having a certificate of their lands. If a well-informed assembly accepted to participate, the entire community facilitated the mapping of agricultural plots. All the boundaries were drawn with the help of locals. They decided how to divide their plots and who was going to receive the certificates”

While the legitimacy of the assembly in *Ejidors* increased among local communities, the role of State’s politico-legal institutions was reduced to deal with the resolution of conflicts of land boundaries, as well as expropriating land, often on behalf its own or particular entrepreneurs’ interests. Hence, land certificates became the instruments of the State to ground its legitimacy on property claims. Issuing the certificate provided the means by which resource users legally demonstrate and justify their land use. The certificate came to legitimize their property rights in front of official institutions; nonetheless, this legitimization is incomplete until the local governing bodies also legitimize these claims. The legitimacy of the State institutions is questioned by the agrarian community, which is more accountable towards the local authorities since there is a general idea of the State as a source of restriction, rather than mediator of the productive activities of the community. As supported by a participant of a focus group with members of the local traditional and religious institutions (FG-1):

“The government (State politico-legal institutions) does not believe we can control [our resources]. [Government representatives] especially from the CDI and CDIPIEM have come to tell us that we have the right to manage ourselves. That we as authorities have to solve the problems, and we as authorities have to organize the town to work together and to protect [our resources]; but the police often wants to come here and do our job. [...] Whenever we cannot solve the problems of the town, we deal with them on assemblies. We take all the decisions there. The government has helped only when people do not agree in the boundaries of their plots, especially in the *Ejido* lands. [...] in those cases having a title of their land has been useful.”

In the case of San Francisco Oxtotilpan, conflicts related to access to resources are dealt with in assembly meetings. The State is regarded as the provider of land certificates that have been helpful to deal with boundary conflicts; however, its

members often question the authority of State politico-legal institutions when it comes to solving the internal problems of the community. In other words, while local governing bodies deal with issues related to the local administration of resources, State's politico-legal institutions dealing with land issues are regarded as providers of property rights throughout the allocation of land certificates.

5.3.3 The legitimacy of community-based governing bodies

There is no reference in the literature as to how the Mexican land reform has modified the construction, consolidation and expansion of authorities, especially of local governing bodies, the way in which rural households legitimize their actions in front of their local authorities and how these local authorities seek legitimacy in front of the state. The previous sub-section illustrates the way in which the State seeks to consolidate its legitimacy by certifying and legalizing claims over property rights, while local communities also sanction local users' property. This contestation between the overlapping powers exerted by different politico-legal institutions justifies resource users seeking legitimacy in their property claims on different forums that in turn use their claims to, on one hand, transform access into property, while on the other turn power into authority (*Ibid.*:13 see also (von Benda-Beckmann and von Benda-Beckmann 2006). As illustrated with the example of *Posesionarios*, from the moment in which local users recognize more legitimacy in the actions carried out by the community's politico-legal institutions, community members are also conceding more authority to them. Conflicts arise when there is a contestation between the legitimacy and capacity of the State and the community's institutions to solve local conflicts over access to resources. As one of the participants in a focus group with representatives from the local governing bodies (FG-1) stated:

“When any member of the community has a problem with their neighbours, they come to us to find a solution. They could also seek support from the government [state institutions], but they know they have to pay a lot to solve their problems; spend a lot of time in Toluca or even in Mexico [City], and in the end some times we end up solving the problems anyway. [...] it has been always like that; it does not matter if there are changes in the government, if new laws are approved, if new institutions are invented; we have always solved our problems by ourselves”

As illustrated by the previous statement, although the land-related politico-legal institutions of the State frame themselves as the main actor involved in the legal dissolution of agrarian conflicts, members of agrarian communities assign an important degree of legitimacy to their local governing bodies that in turn is translated into authority to solve internal conflicts. The State bureaucracy and often expensive and excruciating procedures that members of communities in Rural Mexico have to face to solve their agrarian problems might have implied that local governing bodies could exert their legitimacy to solve internal problems; replacing the States' role.

Another empirical example of this situation can be found from the community's involvement in the land certification programme. After their participation in the land certification programme, San Francisco Oxtotilpan received certificates that stated the physical boundaries of the community. Due to the rough geomorphology of the region, and a lack of accuracy on the maps provided by *Procede*⁴², there have been conflicts with neighbour communities herding and even establishing agricultural plots within the boundaries of San Francisco Oxtotilpan. In an interview (I-5), one of the *Ejido* leaders of one of these neighbour communities stated:

“[...] The problem here is that [the area in dispute] appears in San Francisco's *Procede* certificate and at the same time, it appears in ours. We have had always a good relationship between our villages; however, since we entered in *Procede* some of the community members have had even violent problems. It was until 2006 when we decided to go to the [Agrarian Tribunals] to try to solve the problem. We cannot solve any problem with them! We could never see a judge and they told us they would send somebody to supervise the problem. Nobody ever came. During the celebration of San Mateo (the local saint) in 2008 the traditional authorities of San Francisco and San Mateo organized a meeting to solve the problem. We divided the land so now we know precisely where the limits are. There are no conflicts with us now”

⁴² When certifying a whole community's boundaries, *Procede* used the certificates issued in the first land redistribution (1934-1988). Since these certificates were unclear and often boundaries did not corresponded to the neighbours certificates, *Procede* organized local members of the community (and often with neighbour communities) to show them the plots where the old certificate had problems. Due to rough conditions of the terrain, in some cases –such as in San Francisco Oxtotilpan, *Procede* was unable to indicate the boundaries with physical limits.

The last statement supports the idea that the legitimacy of a politico-legal institution has close relation with their capacity to solve specific problems. The community found that given the lack of response from the official institutions, they had to rely on their traditional authorities to solve the conflict. Hence, local traditional institutions are considered legitimate to solve such kind of conflicts. The case also shows that a local institution can transform access to a resource; in this case the possession of the plot in dispute, into a legitimate property accepted by both communities. In this case, property is sanctioned by social convention and not necessarily by statutory law; however, it is still legitimate not only for the property claimants, but also for the rest of the community. In this case, both the property claim itself and the solution to the property conflict are legitimate since they are endorsed by the local authorities involved. The position taken by the local authorities of both communities indicates that local politico-legal institutions have the responsibility to represent the interest and sanction the property claims of their constituents. As illustrated by the statement, when the interests and property claims of local users surpass the statutory law, local authorities have to put in play complex political-economic mechanisms to administer resources (MacLeod and Goodwin 1999; Welch 2002). These mechanisms are a mixture between the powers that are considered legitimate by the constituents and those considered legitimate by the State. Hence, the capacity of each local authority to put in practice these mechanisms depends proportionally on their legitimacy in front of their constituencies.

Procede provided legal recognition to both *Ejidatarios* and *Comuneros* councils constituting their leaders as recognized legal authorities sanctioned by the State. The recognition obtained in the wake of the early 1990s land reform by these councils implied an obligation –often contradictory, to represent the interests of local constituents and at the same time enforce the policies of the State (Woods 1998; Contreras-Cantu and Castellanos-Hernandez 2000; Nuijten 2003b). This contradiction is often reflected in the way in which local authorities use their legitimacy in front of the State, and their greater legitimacy in front of their constituents to obtain benefits for them or for specific groups within the community (the case of *Ejidatarios* and *Comuneros*). Procede has, therefore,

provided the very means by which local elites are formed and consolidated. An illustration of this issue is provided by the general perspective expressed by groups of *Posesionarios* and *Avecindados*, which affirm that the majority of decisions are taken in *Ejidatarios* and *Comuneros* assemblies, rather than on the general village assembly, as it used to be before the reforms. *Posesionarios* and *Avecindados* have constituted themselves as groups that challenge the legitimacy of the local authorities. For them, the general assembly still should have more power to administer local resources.

Although when it comes to answering claims over access to resources at the community level, the legitimacy of local authorities of San Francisco Oxtotilpan is in general terms prioritized by community members over the State's authority, it does not mean that the position of local politico-legal institutions is comfortable and as it was shown, unchallenged. The case of *Posesionarios* and *Avecindados* supports this statement. Furthermore, the role of the State continues to be central in defining the functions and controlling and limiting the capacities of local authorities, while at the same time, implementing legal frameworks that rule the local access and administration of resources, not for the benefits of the members of local communities, but for what the State considers 'public interest'. This situation is illustrated by the problems faced by *Matlatzincas* when dealing with the tough restrictions on using forest resources.

In relation to forest resources, one of the measurements included in the package of early 1990s legal reforms was the introduction of a law that regulates the extraction of non-timber products (the General Law of Ecological Equilibrium and Environmental Protection LGEEPA)⁴³. Since 2003, federal police guard and patrol the boundaries of the Nevado de Toluca National Park in which the community is partially located. Several villagers have been caught extracting non-timber products for self-consumption purposes that are now banned by the new legal framework. Cases of extortion and imprisonment are common in these cases.

⁴³ This law was first introduced in 1988 and amended in 2001 and 2003, adding more strict restrictions to the extraction of non-timber products through the implementation of the General Law of Sustainable Forest Development (LGDFS).

Accordingly, one of the participants in a focus group with local civil authorities (FG-1) mentioned:

“[...] we have had meetings with representatives from all levels of government explaining them that this forest belongs to us. Our grandparents used the same things that we take from the forest now but they say that there is nothing to do; the new law [states] that taking anything from the forest is forbidden. [...] when one of [the villagers] is imprisoned because of [extracting] something from the forest, we ask for help to CDI and CDIPIEM⁴⁴ to help us out with lawyers”

This situation relates to two issues: first that the *Matlatzinca* group seeks to legitimate their property claims over forest resources on the grounds of their identity as indigenous. They turn to other official politico-legal institutions (the case of CDI and CDIPIEM) to face legal restrictions and to seek protection against rules that are considered unfair. This issue leads to two official institutions conflicted in their interests, one to ‘protect’ the resource integrity, and the other to ‘support’ the indigenous group from the injustices brought by the legal reform. The other issue highlighted by this testimony is that the community’s interests can be different from those expressed by the national –and international society. While the law seeks to ban the extraction of resources to protect the forest for the society’s sake –public benefit, the community seeks to legitimize their claim to extract forest resources in the grounds of property rights –private benefit.

In natural resource governance, the conflict of private *versus* public interests is often framed by the often-conflictive ways in which different sectors of the society seek to legitimize their property claims (Sikor *et al.* 2008; Barnes 2009). The example of the *Matlatzinca* community illustrates this issue, when community members seek to legitimize their claims in front of different institutions. Different politico-legal institutions, therefore, hold different degrees of legitimacy directly dependent on their capacity to sanction different property claims. Hence, the provision and validation of community members’ property rights from different politico-legal institutions shape the distribution of benefits from land-based resources locally. The next subsection illustrates this issue empirically with two cases from San Francisco Oxtotilpan.

⁴⁴ National Commission for the Development of Indigenous Peoples (CDI) and State of Mexico Commission for the Development of Indigenous Peoples (CDIPIEM).

5.4 Controlling access to land-based resources through property.

Property represents the basis for understanding different legal systems. Property relations comprise both how the interests and values of individuals (private) may influence political decisions that affect entire societies (public); and how different politico-legal institutions can determine who benefit from resources by stating what is included within their legal frameworks; in other words, sanctioning access as legal or illegal according to their written, oral, statutory or consuetudinary law (Berry 1989; Ribot and Peluso 2003; Ribot 2004; Barnes 2009). Furthermore, every legal system (including its property aspects) is a reflection of the political arrangements that underpin the negotiation between the rights and freedoms of individuals and the needs of the collective of which they are part (von Benda-Beckmann and von Benda-Beckmann 2006). Taking these assumptions into account, this section aims to illustrate empirically how different legal systems (based on either law-, custom- or convention-sanctioned legal frameworks) are involved in shaping who has access to land-based resources through the legalization of productive practices.

As mentioned elsewhere, legalization could lead to an increase in legitimacy of different institutions. Hence, the more legitimate different politico-legal institutions are, the bigger their capability to exert power by attributing property rights over specific valuables (Nuijten and Lorenzo 2006; von Benda-Beckmann and von Benda-Beckmann 2006). Consequently, determining which actions are legal or illegal depends directly on how politico-legal institutions sanction these actions by law, custom or convention (Berry 1989; Ribot and Peluso 2003; Ribot 2004). The new legal framework established from the early 1990s land reform in Mexico has countless examples of conflicts between the laws and expectations of the State, and the consuetudinary structures and practices of rural communities (Contreras-Cantu and Castellanos-Hernandez 2000; Lewis 2002; Nuijten 2003b; DiGiano *et al.* 2008). The case of the land certification programme (Procede) is used here to illustrate empirically how different politico-legal institutions sanction

as legal or illegal specific practices of their constituents and how members of the agrarian community use their property claims to obtain benefits from resources.

5.4.1 Procede and land transactions

The main premise of land reform in Mexico was to provide land tenure security by the provision of property rights through issuing land certificates (Zepeda 2000; Nuijten 2003a). The land certification programme (Procede) was the main tool that the National Agrarian Registry designed to distribute land certificates. These land certificates were supposed to help smallholders to obtain credits, while legalizing the practices that were considered illegal (renting, selling, sharecropping, inheritance, etc) (Contreras-Cantu and Castellanos-Hernandez 2000; Lewis 2002). This situation had profound consequences on how individuals and groups within the rural sector in Mexico controlled and maintained their access to resources. As mentioned by the participants of a focus group with Ejidatarios (FG-2):

“Participant 1: We decided to participate in Procede because of various reasons: some [villagers] were worried they would lose their lands without the certificates; some others suggested that we could have credits in any bank with our certificates; however, none of the villagers have had access to credits so far. *Participant 2:* When [Procede representatives] came to explain us, they told us that it was illegal to [sharecrop], rent or sell our lands and that if we participated in Procede, we could do so even with people from outside the community. When we were about to decide to participate or not, we knew we would not have any credit with our certificates because we knew that those were only promises from the government. We also knew that we would not sell or rent our lands to [outsiders] because *that* is more illegal for us. *Participant 1:* That is true, with or without Procede certificates; we will never share our land with people from other villagers, but we were afraid the government would take reprisals against us, so we decided to participate.”

The villagers of San Francisco Oxtotilpan have a clear distinction between what is legal and illegal according to the politico-legal institution they refer to. The evidence presented suggests that the practices that were supposed to be legalized by the implementation of the new legal framework, did not bear any modification, since they were considered legal by the local customary law. Renting, sharecropping, inheriting and even selling was already regulated by the local

authorities. Hence, community members were holders of legitimate property rights sanctioned and recognized by custom and convention even before their participation in the land regularization programme. These community members could assert their rights to control who has access to resources and to ensure their own maintenance of benefits.

The situation for those members without such rights has not changed in relation to the implementation of *Procede*. While some members of the community received official land certificates (*Ejidatarios* and *Comuneros*), other community members without any recognized right keep the same pattern of access to land-based resources before and after the early 1990s land reform. For instance, in order to get access to agricultural plots, *Posesionarios* and *Avecindados* have to rent, sharecrop or be employed as labourers by other community members in possession of land. Hence, if landless households needed to obtain benefits from land-based resources, they had and still have to negotiate their access with rights holders through the payment of fees, exchange of labour (*jornales*) or other mechanisms.

Another notable aspect is that community members are aware of the possible reprisals that the State could take against them if not being contemplated within the official statutory law. Although there is no evidence of coercive enforcement of the community's participation in *Procede*, this fear comes from other array of conflicts that community members have been facing by carrying out actions that are considered illegal by the State, but sanctioned as legal by the local authorities⁴⁵. "This differentiation between what is legal accordingly to the politico-legal institution that sanctions any activity as such, has deep consequences on the consolidation and contestation of different *systems of legitimacy*" (Ribot and Peluso 2003:163 *emphasis in original*). Land transactions

⁴⁵ Due to the strong regulations on extractive practices, community members have suffered prosecution by federal officers due to extraction of both timber and non-timber products. Examples of prosecution and imprisonment have been more common on villagers extracting forest resources from within the boundaries of the Nevado de Toluca National Park. The ambiguities and overlapping regulations that rule National Parks and forest activities in Mexico provokes that communities settled in similar areas receive enormous pressures and restrictions for accessing forest resources. These legal constrains are not perceived as strong in other communities in Mexico that are settled in 'unprotected' forest lands (See Zepeda 2000; DiGiano, Racelis et al. 2008).

are at the core of these systems of legitimacy since members of the agrarian community choose to participate on them besides sanctioned as illegal by the official legislation. Table 5.2 shows the land transactions carried out in San Francisco Oxtotilpan.

Table 5.2. Frequency of land transactions by agrarian status^a

Transactions on agricultural land	Agrarian Membership	Number of Households that carried out these activities	Percentage of each land transaction
Rent In	Ejidatarios	3	14
	Comuneros	7	32
	Posesionarios	6	27
	Avecindados	6	27
	Total	22	100
Rent Out	Ejidatarios	2	22
	Comuneros	5	<u>56</u>
	Ejidatario and Comunero	2	22
	Total	9	100
Selling	Ejidatario and Comunero	1	100
Sharecropping	Ejidatarios	6	25
	Comuneros	3	13
	Posesionarios	7	29
	Avecindados	8	<u>33</u>
	Total	24	100
Buying	Ejidatarios	2	20
	Comuneros	3	<u>30</u>
	Posesionarios	3	<u>30</u>
	Ejidatario and Comunero	2	20
	Total	10	100
None	Ejidatarios	8	30
	Comuneros	1	4
	Posesionarios	11	<u>41</u>
	Avecindados	6	22
	Ejidatario and Comunero	1	4
	Total	27	100

a. Source: *Dataset 2*

Sample: n=93

The land transactions presented here were completely illegal before the land reform of the 90's in Mexico. However, since the creation of *Ejididos* after the Mexican revolution in 1920s, these practices were carried out *de facto* by smallholders in Mexico's rural sector (Wolf 1956; Deininger and Binswanger

1999; Otero 2000; Nuijten 2003a; Bouquet 2009). The legal framework introduced during the land reform in Mexico, did not include regulatory mechanisms that could control these land transactions. In San Francisco Oxtotilpan, where there has not been privatization of land, and where land transactions are restricted to members of the agrarian community, community members report that agricultural plots are sharecropped, rented and sold with the same frequency than before the land reform.

Table 5.2 shows that during the agricultural cycle surveyed, the majority of villagers renting in land were *Comuneros* (32%), *Posesionarios* (27%) and *Avecindados* (27%). *Comuneros* are the group with better economic possibilities for renting in land due to their wider sources of income (see Chapter 7). *Posesionarios* and *Avecindados* rely more on agricultural land since their access to other off-farm activities is restricted for economic reasons. This situation forces them to look for ways of accessing plots for agricultural production. These strategies include land transactions such as renting in, buying or sharecropping agricultural plots. Buying land implies having enough economic funds to pay for the plot. *Comuneros* and *Posesionarios* are reported as the main groups when it comes to buying agricultural land (30% each). *Avecindados* do not report to have bought any agricultural plot during the period studied this is also an illustration of the economic constraints that this group faces. This finding is supported by the fact that sharecropping is the main land transaction by which *Avecindados* get access to agricultural plots (33%).

Sharecropping involves an agreement between two producers; one has land to spare and agricultural inputs; fertilizer, herbicide, seeds, etc. while the other provides the labour during the whole agricultural cycle. The production is then split into two parts, one for the landowner and the other one for the labourer. Sharecropping often involves the production of commercial crops such as potatoes, peas, beans or broad beans; this way the products are not split, but the earnings. The landowner gets half of the profits plus the inputs expenses, leaving the labourer only a fraction of the total profits.

Renting in land and sharecropping are reported as the practices more used to access agricultural land when needed. As explained before, the main difference in between these activities is the economic resources needed for each one of them. At a first glance, sharecropping could be seen as disadvantageous for the landless, however, not only the production is split between the participants, but also the risk of losing the crop if the climatic conditions are not optimal. In the case of a drought or an excessively wet season, both the owner can lose the investment, and the labourer can lose the potential revenue. For the case of renting in land, the risk is high as well, since the rent needs to be paid under any condition. These agreements are mainly based on trust, and no document is ever signed. The local authorities address the resolution of conflicts.

Although having consuetudinary property rights recognized by the community authorities and the rest of villagers, *Posesionarios* have limitations since they do not have the right to participate on *Ejidatarios* and *Comuneros* assemblies, even though being in possession of agricultural plots. However, it can also work the other way around. Having an official certificate does not imply guaranteed access to agricultural land. The following table focuses on the distribution of landless community members and their agrarian status.

Table 5.3. Frequency of landless households by agrarian status^a

Agrarian Status	Landless households (%)	Households without irrigated land (%)	Households without rainfed land (%)
Ejidatarios	5	29	5
Comuneros	5	42	21
Posesionarios	22	70	26
Avecindados	30	60	45
Households with both Ejidatarios and Comuneros certificates	50	0	0

a. Source: *Dataset 2*

Sample: n=93

There are several examples in which some *Ejidatarios* or *Comuneros* are not in possession of agricultural land. These households can have official land certificates; however, their access to land is limited since they could have already rented out or sold their agricultural plots. As shown in Table 5.3, 30% of *Avecindados* and 22% of *Posesionarios* do not have agricultural land. Compared to the low proportion of landless *Comuneros* and *Ejidatarios* (5% and 5% respectively), *Avecindados* and *Posesionarios* are the community members with more restricted access to agricultural land. The figures on rainfed and irrigated land show similar proportion, demonstrating that irrigated land is mostly concentrated on those having *Ejido* or *Tierras Comunales* certificates. It is interesting to highlight that from the households in possession of both *Ejido* and *Tierras Comunales* certificates, 50% reported not having agricultural land, but the other half has irrigated and rainfed plots. This implies that this type of households have recognized rights over plots located on both the *Ejido* and *Tierras Comunales*. The main conclusion that it is possible to derive from the figures obtained in Table 5.3 is that it is possible to have property (the right to benefit) without having access (the ability to benefit)⁴⁶.

According to Ribot and Peluso (2003:164): “any access gained “illegally” is also rights-based: it is a form of direct access defined against those based on the sanctions of custom, convention or law. Illegal access refers to the enjoyment of benefits from things in ways that are not socially sanctioned by State and society”. Hence, different politico-legal institutions enforce different sets of regulatory norms. While the State relies on statutory law, community-based authorities enforce consuetudinary regulations that restrict or allow different access to resources. Resource users have to bear in mind the set of regulations they need to follow in order for them to be considered legal or not. Traditionally, any action is considered ‘illegal’ when it is carried out in contravention of official laws and regulations (Casson and Obidzinski 2002); when it comes to land-based resources strong measures to regulate extractive activities have strained the State to design and implement more strict regulations. However, given that the legitimacy of

⁴⁶ For a detailed analysis of the distribution of land among members and not members of either *Ejido* and *Tierras Comunales*, refer to chapter 6.

authorities when it comes to sanctioning property claims can be contested at the user's level, defining whether an extractive activity is legal or illegal is extremely difficult (*Ibid*).

5.4.2 Procede and access to credits

One of the main aims of the 1990s reforms supporting the formalization of property rights by issuing land certificates was that smallholders would be able to use their land as collateral for accessing credits; however, “because incomplete property rights the *Ejido* sector is severely constrained in accessing commercial credit” (de Janvry *et al* 2001:468). Furthermore, lack of formal credit for smallholders has demonstrated being the main sign of the failure of the land reform implemented in Mexico from early 1990s due to two main reasons; first, financial institutions do not accept as reliable for credit the certificates issued by the land reform ministry since the new legal framework neither created effective land markets nor improvements in productive agriculture; and second, the certificate holders see little value in applying for credit; especially because of the small return on investing on small-scale rural agricultural production and the ‘fear’ of privatization (Lewis 2002; Winters *et al.* 2002; Carter and Olinto 2003; Nuijten 2003b; de la Fuente 2010; Todd *et al.* 2010). The insights provided by the case of San Francisco Oxtotilpan demonstrate these assumptions. Access to credits has been reduced to those granted by conditional cash transfers programmes that have no relation with the provision of the land certificates issued by the Agrarian Reform Ministry. Even *Comuneros* in an effort for improving the infrastructure of the local mine owned by them, have been denied the possibility to obtain credit from any private bank using their *Comuneros* certificates as collateral.

On the other hand, the community has created a mechanism by which they can ensure first, that the enjoyment of the resources available remain in its inhabitants, while avoiding the potential privatization of lands, especially on behalf outsiders. Any land holder in possession of a land certificate issued by Procede can use it to sharecrop it, rent it, lease it or, only after the consensus of the whole *Ejido* or

Tierras Comunales assemblies start the procedures for privatizing their plots⁴⁷ (Contreras-Cantu and Castellanos-Hernandez 2000; Zepeda 2000). Even though allowed by official institutions, local politico-legal institutions in San Francisco Oxtotilpan restrict its inhabitants to carry out any land transaction with outsiders. Hence, villagers are restricted to rent, lease, sharecrop or lend their agricultural lands to members of the same community by their own set of socially acknowledged politico-legal institutional framework. According to a key informant from San Francisco Oxtotilpan:

“When people started to think about accepting Procede, people thought we could get money from banks by using our titles. *Comuneros* decided not to have an individual title because they already had money from their activities (mining and supervised loggings). We [*Ejidatarios*] thought we could use titles for individual plots but the titles have proved to be useless for getting credits as they promised. For some neighbours, having credits would have meant improving their plots, buying a tractor, or livestock. [...] Having Procede certificates did not change anything. It did not improve the agriculture, or other activities. Since we did not receive any credits, agriculture is every time less of a business”

One of the issues raised by this informant is the fact that having a land certificate was not enough for the community members to obtain credits as promised by Procede representatives. Without access to credits the members of the community report no changes in their reliance on agricultural activities for their livelihoods. In other words, the introduction of Procede in San Francisco Oxtotilpan is an example about having property over agricultural plots (Procede certificates), without having access (the ability to benefit) to agricultural land. As table 5.3 shows, the income generated from agricultural activities has a close relation with the property rights that each type of community member holds (*Ejidatarios*, *Comuneros*, *Posesionarios* or *Avecindados*).

⁴⁷ The certificate issued by Procede cannot be used as a land title. Participating in Procede is the first step towards obtaining a certificate of *Dominio Pleno*, which is the equivalent to a property title. *Dominio pleno* entitles the holder to sell their land without the need for approval from the rest of members of the *Ejido* or *Tierras Comunales* (Zepeda 2000). The original reform proposed in 1991 considered that the Procede certificates could act as property titles so their holders could sell their land without the approval of the assemblies. When the actual reform was passed by the government in 1993, this issue was left aside to avoid a massive privatization of land (Contreras-Cantu and Castellanos-Hernandez 2000; Lewis 2002).

Table 5.4. Income distribution by council membership

Council Membership		Cases	Minimum (Mexican Pesos)	Maximum (Mexican Pesos)	Average income (per year) (Mexican Pesos)
<i>Ejidatarios</i>	Total Farm Income	21	-611	65494	7423
	Total Off-Farm Income	21	12506	126685	55107
	Total Income from all sources	21	15496	154245	62530
<i>Comuneros</i>	Total Farm Income	19	-1040	17732	4264
	Total Off-Farm Income	19	12948	111488	52754
	Total Income from all sources	19	11960	114192	57018
<i>Posesionarios</i>	Total Farm Income	27	-390	17329	3731
	Total Off-Farm Income	27	7683	127517	40664
	Total Income from all sources	27	12701	129688	44395
<i>Avecindados</i>	Total Farm Income	20	0	10582	4030
	Total Off-Farm Income	20	11427	77701	33228
	Total Income from all sources	20	13494	78988	37245
<i>Ejidatario and Comunero</i>	Total Farm Income	6	2951	64012	15925
	Total Off-Farm Income	6	23634	86268	48932
	Total Income from all sources	6	35698	150293	64857
Total	Total Farm Income	93			5525 11%
	Total Off-Farm Income	93			45331 89%
	Total Income from all sources	93			50856 100%

Source: Dataset 2

As mentioned, income is an indicator of the benefits that can be obtained from land-based resources. It has been demonstrated that regions with better climates for agriculture support higher rural incomes and regions with poor climates have more rural poverty (Reardon *et al.* 2001; Reardon *et al.* 2006; Haggblade *et al.* 2009). It would be possible to argue that given the physical conditions of San Francisco Oxtotilpan for the production of agricultural goods, household farm income (including agriculture and livestock) would represent the largest proportion. However, as shown in table 5.3, some households not only do not profit from farm activities, but even report loses. Only households with membership to both *Ejidatario* and *Comunero* membership do not report lose in

terms of farm activities. According to the figures presented, households with both *Ejidatario* and *Comunero* membership obtain more income from agricultural activities than other groups. This supports the findings discussed in the previous section and Chapter 4 about the privilege position of these households to obtain maintain and control their access to land-based resources through relational mechanisms.

Furthermore, income obtained from off-farm activities represents the largest proportion among *Matlatzinca* households⁴⁸. This figures put in place not only the importance of off-farm activities for rural households, but also the decreasing importance of farm activities as the main household income provider. In terms of total income, 89% of the mean income obtained per year comes from off-farm activities, while farming activities provide only 11%.

The cases of lacking access to credits and the ‘fear’ of land privatization are examples of the unfulfilled promises of the land reform and the creation of false expectations that the Mexican State has created. The State, on an effort to offer a wide arrange of options for people in need, implements a bureaucratic structure that Nuijten (2003b: 16) calls “The hope-generating state machine”. Being so complex, deeply rooted in its relation with other private non-State institutions and heavily filled with administrative procedures and stances, this State’s bureaucratic structure on one hand provides a vision of itself being the facilitator, while on the other hand, restricting and often hindering smallholders, indigenous and rural communities, the possibility to benefit from their land rights. This might be one of the reasons by which the legitimacy of the State is questioned, and often confronted by the action of local resource users, while providing the very means by which local non-State politico-legal institutions contest the State’s authority and get local recognition as the valid forum in which resource users seek to legitimize their claims.

⁴⁸ For the purposes of this research off-farm activities are defined as the practices that derive income (or the equivalent) that are carried out outside households’ own farms.

5.5. Conclusions.

The modes and pathways of access to land-based resource are complex. This chapter illustrates the role of property when acting as an access mechanism. Furthermore, it shows that in order to maintain and control access to land-based resources, property is one amongst other access mechanisms used by local users to obtain benefits from resources. Property, hence, is a component of a broader structure –access. According to Sikor and Lund (2009:5) “[...] property and access overlap partially: property rights may or may not translate into ‘ability to benefit’; and access may or may not come about as a consequence of property rights.” Property can therefore, represent a source of conflict when different social sectors seek legitimacy on their actions.

The main difference between the way the State and the local community sanction property is that for the State property is a given; whereas for local communities, a property claim is only accepted by the local governance bodies when a complex set of duties and responsibilities is fulfilled. The implementation of Procede showed that for the State, property claims are a fixed right attached to the idea of ownership supported by an official document. On the other hand, agrarian communities’ idea of property differs from this notion, since more important than the possession of a title, the recognition of property depends on the fulfilment of social procedures established by the structure of governance at the local level.

The vast literature dealing with the effects brought by the last period of land reform in Mexico has paid little attention to the consequent modification of property relations on peasant and indigenous rural communities. The implementation of Procede as the main land reform programme provides an example about how property relations have changed in the case study selected, and the consequent conflicts between authorities based on statutory and/or consuetudinary law. The implications of these consequences are related to the formation of local elites and the consolidation local authorities that contest the legitimacy of the State to solve the local struggles over access to resources. According to Ribot and Peluso (2003:163): “within formal and informal systems of legal pluralism, a State often remains the ultimate mediator, adjudicator and power holder”. However, as shown in the examples provided in this chapter some

actors may be able to maximize their own benefits by maintain their own access or gaining their rights, seeking to have these rights enforced or sanctioned by local authorities.

In this respect, resource users seek different forums to legitimize their property claims, while “Politico-legal institutions seek to turn power into authority by gaining and sustaining legitimacy in the eyes of their constituency” (Sikor and Lund 2009:10). The implementation of *Procede* was supposed to create an environment of secure property rights, so land-based resource users could use their property to improve their living conditions, at the same time as empowering local authorities to solve their own problems with the State assistance. Due to an incomplete property rights scheme, *Ejidatarios* and *Comuneros* are constrained to use their land as supposed by the land reform initiative; local authorities increased their legitimacy and capacity in front of their constituents, however, there are two consequences that arose: a) The legitimacy of the State is contested not only by local authorities, but by local users themselves, and b) Local elites of *Ejidatarios* and *Comuneros* as well as community members holding authority positions, consolidate themselves as elites that shape local access to land-based resources. Therefore, property relations play a central role in defining how and who benefits from land-based resources, rather than the official recognition of land tenure regimes status provided by the procedural act of property rights formalization (*Procede*). Issuing official certificates over land do not deal with the inequalities between *Comuneros*, *Ejidatarios*, *Avecindados* and *Posesionarios*.

Furthermore, when it comes to access land-based resources, what can be considered as illegal by official instances, such as the State, may be legal according to the local consuetudinary law. An efficient policy regarding access to land-based resources should find the way of linking the interests of local agrarian communities and what is stated on the official legislation. Property, in this sense, remains as an ambivalent concept; an idea that is not acknowledged in the same way by those designing and implementing policies for natural resource management, and those accessing these resources as part of their livelihoods.

CHAPTER 6. HOUSEHOLD'S ACCESS TO LAND-BASED RESOURCES THROUGH STRUCTURAL AND RELATIONAL MECHANISMS

6.1 Introduction

The previous chapter deals with the role that property plays in the distribution of benefits from land-based resources. It is argued that property is only one among a wider set of mechanisms that members of an agrarian community put in place to access land-based resources. According to the analytical framework proposed, there are three mechanisms that shape the distribution of benefits from land-based resources; property belongs to the first category (rights-based mechanisms). This chapter deals with the second category, structural and relational mechanisms.

The focus on the classification of structural and relational mechanisms responds to the need for a better understanding of the mechanisms that are expressed in the social relations and mingled within the structure of the agrarian community. Furthermore, this chapter provides empirical evidence of the extent in which the process of land reform has modified the structure and social relations of San Francisco Oxtotilpan; and therefore, their access to land-based resources. It is argued that the early 1990s land reform not only changed individual households' use of landed resources, but also the structural and relational mechanisms of access that the community uses to benefit from land-based resources. This chapter distinguishes the material and non-material benefits obtained from land-based resources as indicators of access while focusing on the structural and relational mechanisms as the variables that explain the distribution of these benefits.

To achieve a better understanding of both the way the agrarian community makes use of these mechanisms and the effects that land reform and land policies have had on them, this chapter is divided into seven sections including this introduction. Section 6.2 explains the importance of structural and relational mechanisms on the analysis of access to land-based resources. From section 6.3 to 6.6 the

structural and relational access mechanisms as identified in the analytical framework of this research are empirically analysed; identity, interpersonal relations, markets and knowledge respectively. The final section includes the concluding remarks.

6.2 Structural and Relational Mechanisms

Understanding the distribution of access to resources requires a deep understanding of the means by which different actors maximize the benefits obtained from resources (Ribot 1998). However, the complex net of mechanisms that are put in place to obtain benefits is embedded in different political, economic and cultural circumstances. Structural and relational mechanisms of access refer to the set of mechanisms that individuals, groups or institutions put in place to gain, control and maintain access to resources under the circumstances mentioned (Blaikie 1985; Berry 1989; Ribot and Peluso 2003). The main aim of this chapter is, therefore, to explore the extent in which structural and relational mechanisms shape or influence the distribution of benefits from land-based resources in San Francisco Oxtotilpan.

The categorization of structural and relational relates to the idea that there are mechanisms that are more closely related to the internal structure of the agrarian community, and to the social relations of their members. Structural and relational constitute a category of access mechanisms that together with rights-based, and control over other productive resources, determine the distribution of benefits from landed resources. Thus, the social relations and the internal structure of the community frame structural and relational mechanisms (identity, interpersonal relations, markets and knowledge).

In the same way in which the analysis of rights-based mechanisms seeks to unveil the different property claims of resource users, the analysis of structural and relational mechanisms aims to revealing internal relationships and practices of access. Hence, it is necessary to reveal the set of political, social, economic and cultural frames that encompass the internal structure of the agrarian community, while at the same time the social relations that frame the local governance of resources.

Given that it could be argued that social relations are a central feature of the structure of any given community, this study does not differentiate structural from relational mechanisms. Hence, this study acknowledges that relational mechanisms can be related to the linkages that exist in between two individual or groups of households, while structural mechanisms can refer to socio-politic and economic features that are shared across all the members of the agrarian community. Given the blurred boundaries between these issues, structural and relational mechanisms are analysed here as a single category⁴⁹.

Furthermore, putting into practice structural and relational access mechanisms create networks of cooperation and solidarity that in turn can reinforce the cohesion of the whole agrarian community. However, as it will be illustrated in this chapter, when these networks of access favour specific individuals or groups within the community, the benefits from land-based resources can be concentrated among these actors.

As mentioned in Chapters 4 and 5, the process of land reform in Mexico has deep implications in the structure of agrarian communities in Mexico and the social relations of its members. Along the following subsections the analysis of structural and relational mechanisms of access is related to the social interactions and organization around the land reform process. It is argued that not only the land reform process shifted in the way individual households are structured internally, but also it modified the way these households get together and form groups and networks of cooperation.

6.3 Access through Identity

The case of San Francisco Oxtotilpan illustrates that identity shapes the distribution of benefits from land-based resources in two aspects: in structural terms, the members of the agrarian community highlight their indigenous identity; in relational terms, different individuals and groups of community members differentiate each other according mainly to their membership to any of the agrarian categories –*Avecindados*, *Posesionarios*, *Comuneros* or *Ejidatarios*, but

⁴⁹ For a wider discussion on the conceptualization of structural and relational mechanisms, refer to Chapter 2.

also to other factors such as gender or age that differentiate the households' identity.

The indigenous identity of the community is an issue that shapes not only individual households' access to resources, but also the community's strategies to cope with external institutions and neighbour communities. Furthermore, indigenous identity plays a central role when agrarian communities seek to extract resources from natural resources. In this respect, the *Matlatzincas* provide an illustrative example of the use of identity to frame their claims in front of State institutions. As the *Jefe Supremo* –supreme chief of the *Matlatzinca* group states in interview (I-6):

“I have tried to convince the government that we need to get some things from the forest to use them in our ceremonies. During the ‘day of the death’ and San Francisco festivities, we need to get *varillas* and other plants for our ceremonies. The government does not understand that we are indigenous and we need them for the festivities. I understand they ban cutting trees, but some herbs and small plants are also forbidden”

Given the strong regulation and vigilance of extractive activities in the surrounding forest, especially in the Nevado de Toluca National Park, the *Jefe Supremo Matlatzinca* has organized a series of talks with some government agencies to try to reduce the ban of some non-timber products based on the claim that San Francisco Oxtotilpan is an indigenous community. Indigenous groups in Mexico have been claiming their rights as indigenous people to get differentiated access to natural resources within what is considered a traditional territory (Concheiro Borquez and Grajales Ventura 2005; Boege Schmidt 2008). In the same interview (I-6), the *Jefe Supremo* mentioned:

“Q: *What is the advantage of being Matlatzinca for San Francisco? Is the community receiving any benefit for being indigenous?* My job as supreme chief is to mediate between CDI [National Commission for the Indigenous Peoples Development], CEDIPIEM [State of Mexico Commission for Indigenous Peoples Development] and us. I need to go to Toluca or Mexico City to demand for help [...] I have got construction materials and other supports for my people, scholarships for the children and tools for working the land. Apart from that, the government does not treat us different to our [non-indigenous] neighbours. We do not have any advantage. [...] however, [neighbour communities] know that we are organized as indigenous. Once they tried to convince CEDIPIEM that they were *Matlatzincas* as well, but both CDI and CEDIPIEM know that we are one of the four indigenous groups of the state, and that only San Francisco has *Matlatzincas*”

One of the arguments of this research when it comes to indigenous identity, is that individually, *Matlatzincas* see themselves as smallholder farmers (see Figure 6.4), rather than individual indigenous; the indigenous identity arises from the communitarian worldview, the sense of cohesion and solidarity among the villagers and their ability to be readily united to mobilize the whole community towards specific and common goals. Indigenous identity as a trigger for social cohesion has been criticized in terms of individual *versus* communitarian rights and how powerful or culturally, economically or politically better positioned groups are prone to take advantage of being the leaders of indigenous movements (Fearon and Laitin 1996; Eisenstadt 2007; Eisenstadt 2009).

The comments expressed in the interview with the supreme chief illustrate that eventually identity can be used to obtain benefits at the communitarian level; the way in which these benefits are distributed among villagers is a subject of other discussion⁵⁰. Although it is possible to argue that the distribution of material benefits derived from productive activities related to land depends on a wide array of social and political processes, the villagers in San Francisco Oxtotilpan still consider their territory in terms of the non-material benefits it provides. As the leader of the *Ejidatarios* mentioned during an interview (I-5):

⁵⁰ Claims of uneven distribution of goods provided for *Matlatzincas* arose in the process of fieldwork. Allegations about the distribution of goods distributed among the relatives of the representatives of the village and local authorities, not among the people in more need, were commonly expressed.

“It does not matter if you have or not [agricultural land], by the simple fact of being *Matlatzinca* you can enjoy the forest, graze your sheep and eat from the food that the forest gives. We all want to keep our forest clean. We are all worried to take care of our land. [...] Maybe that is why whenever there is a fire everybody helps. It does not matter if you are *Avecindado*, or *Ejidatario*. The forest gives clean air and water to all”

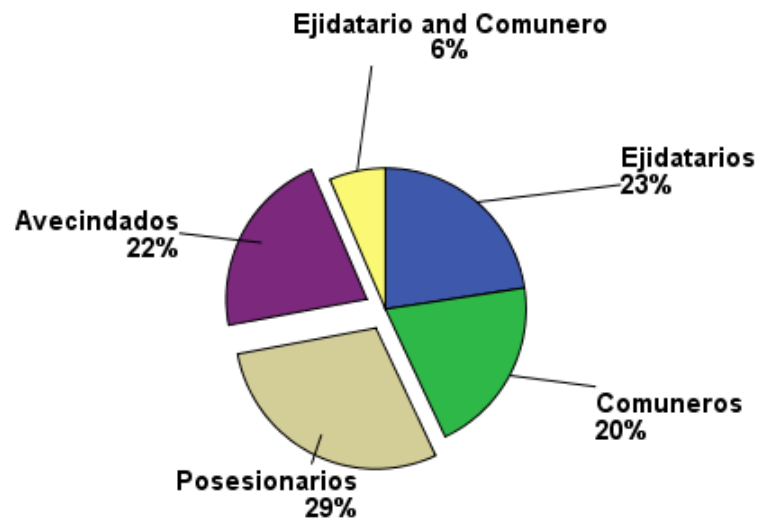
The provision of non-material benefits especially from common land represents a major factor that not only creates social cohesion, but also creates cooperation across groups of households regardless of their agrarian status or wealth position. The common interest for preserving their resources and the traditions and religiosity involved in their appreciation of land-based resources plays a central role in their recognition as indigenous.

Indigenous identity provides *Matlatzincas* the grounds by which they, as a group, can claim for specific rights, constructing themselves as a different social entity with specific traditional needs. In the same grounds that the *Matlatzinca* group deals with politico-legal institutions related to indigenous affairs, the group has tried to justify some aspects of the way in which they obtain benefits from their resources upon other institutions dealing with natural resources affairs. As stated by the *Jefe supremo Matlatzinca*, although some politico-legal institutions respond to their claims as indigenous groups, when it comes to the use and extraction of land-based resources, the State applies the same restrictions applied to other communities within the national park.

As mentioned in Chapter 4 and 5, land reform processes in Mexico have brought profound changes in the organization of *Ejidos* and *Comunidades* in rural Mexico. Some of these changes are often related to the way in which social identities are structured. For the case of rural communities in Mexico, the most notable differentiation in terms of identity is based on the membership to the agrarian categories when it comes to land ownership. Hence, *Comuneros*, *Ejidatarios* or *Poseesionarios* and *Avecindados* overpass their differentiation according to their possession (or lack) of land, to become identity categories that every member of the agrarian community acknowledges.

As mentioned in Chapter 5, *Comuneros* and *Ejidatarios* hold official certificates of their agricultural plots and have common productive activities (forest management, mining, gas station) from which *Posesionarios* and *Avecindados* are excluded. Furthermore, while both *Posesionarios* and *Avecindados* do not have official certificates, *Posesionarios* might have access to agricultural plots lent, rented or inherited by other members of the community. *Avecindados* also can obtain benefits from land-based resources since there are accepted as members of the agrarian community. By exploring the distribution of these identities across San Francisco Oxtotilpan it is possible to perceive the way in which some members of the community might obtain benefits from land-based resources through their agrarian identity –*Comuneros*, *Ejidatarios*, *Posesionarios* or *Avecindados*. The following figure shows the findings from the sample taken – *Dataset 2*.

Figure 6.1. Household head's agrarian categories.



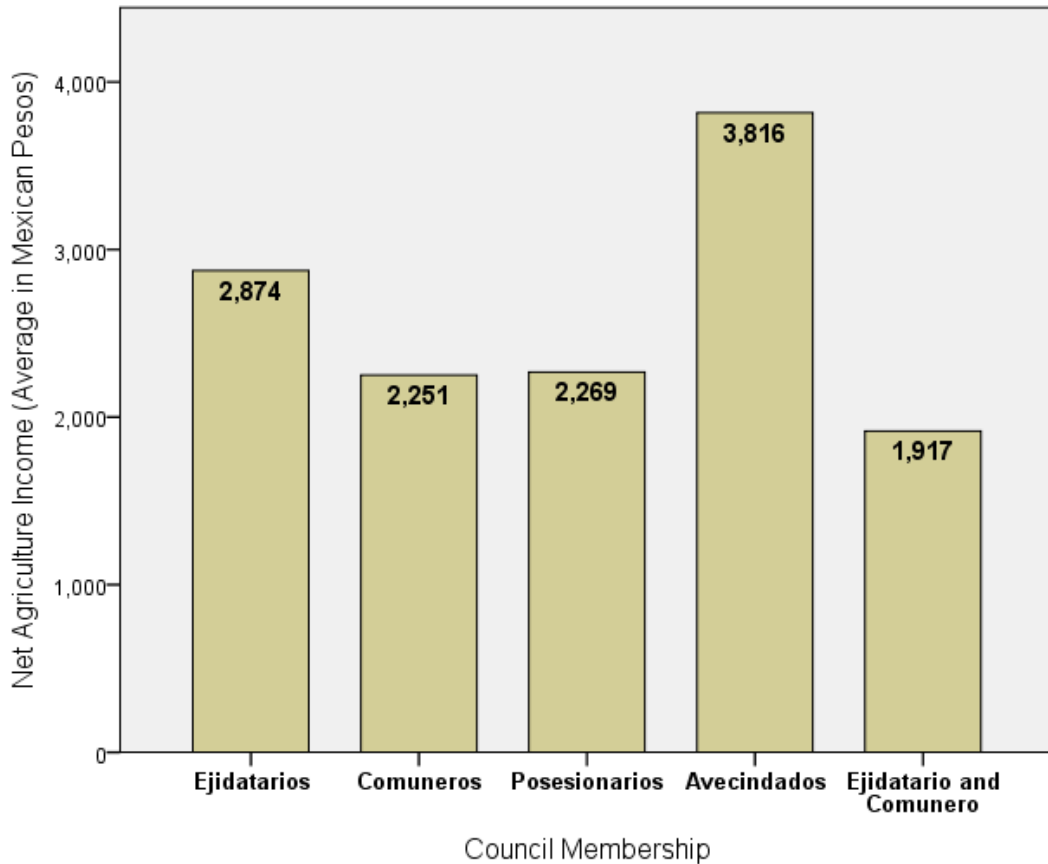
Source: *Datasource 2*
Sample: n=93 (26.3% of total households).

Obtaining benefits from agricultural land is not exclusive to those holding formal rights to land. *Posesionarios* and *Avecindados* are non-membership villagers that have access to agricultural land in different ways. *Posesionarios* are landholders that could have received agricultural plots by donation or inheritance from other family members with plots to spare. It is common for villagers that create a new household after marriage to receive agricultural land from their elderly parents.

From the sample taken, 29% are *Posesionarios*, and represent the biggest group of producers in the village. The largest proportion of *Posesionarios* also indicates the patterns of land subdivision. Hence, with more agricultural land available for cultivation, *Comuneros* and *Ejidatarios* were able to subdivide and inherit plots to their own family (even when it was forbidden before the 1990s), reducing the average plot size and increasing the number of *Posesionarios*. Both *Ejidatarios* and *Comuneros* have the legal right to add members allocating them agricultural land and usufruct rights; however, becoming *Comunero* and *Ejidatario* is difficult for *Posesionarios* since the total amount of agricultural land available is already allocated to recognized members. Another aspect that makes complicated to include more members of the community to the group of *Comuneros* and *Ejidatarios* is their lack of willingness to distribute their revenue among more members. *Posesionarios* can obtain *Comuneros* or *Ejidatarios* rights when replacing an existing member (most commonly their elderly parents). In that respect, *Posesionarios* can be a group for pressure for *Ejidatarios* and *Comuneros*, by trying to gain access to resources by acquiring *Ejidatarios* or *Comuneros* status. In San Francisco Oxtotilpan this situation has been characterized more as individual claims rather than an eventual consolidation of a *Posesionarios* group.

Avecindados represent an important proportion of the whole *Matlatzinca* households' heads (22%). The main characteristic of this group is not only their lack of membership to any group, but also their lack of agricultural land. *Avecindados* do not own land neither from inheritance nor by family donation; nevertheless, this situation do not imply that *Avecindados* cannot access agricultural land. In fact, Figure 6.2 provides interesting insights about the extent in which *Avecindados*, even without having official certificates, obtain more benefits from agriculture than other community members.

Figure 6.2. Average income from agriculture by council membership



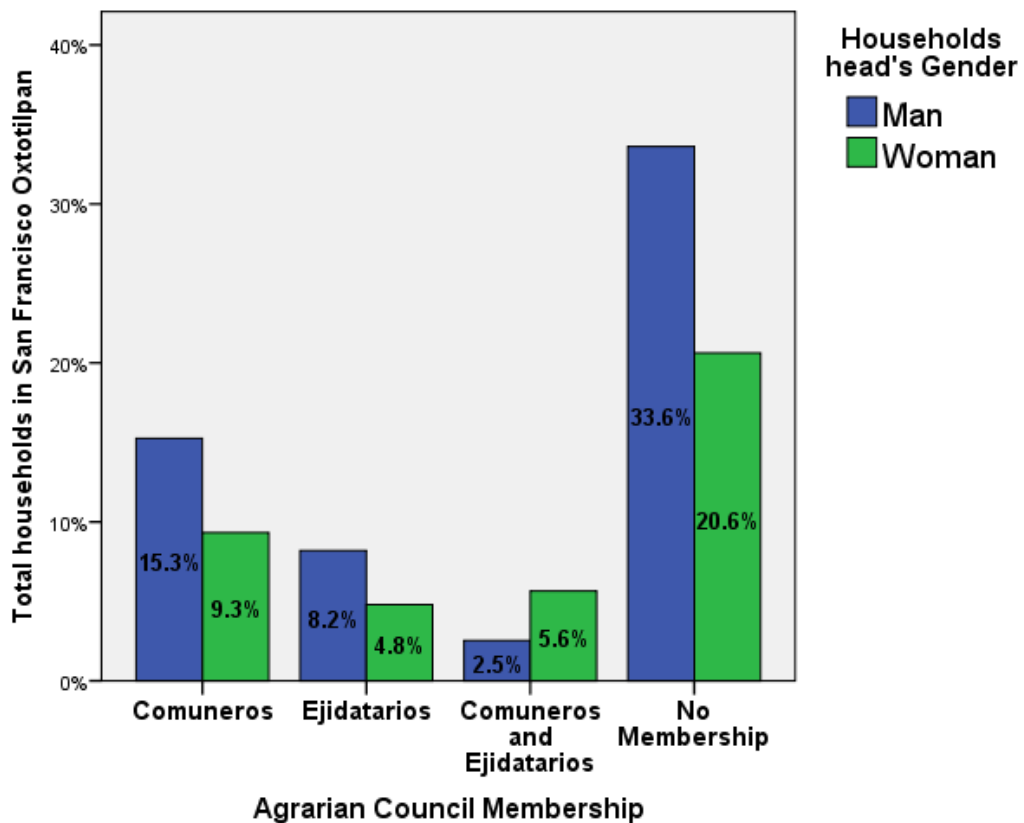
Source: *Datasource 2*
 Sample: n=93 (26.3% of total households)

Agriculture represents the main source of income for *Avecindados* in San Francisco Oxtotilpan. Even though *Avecindados* have no official possession of agricultural land (supported by land certificates), *Avecindados* are still considered members of the agrarian community; and consequently, allowed to rent and sharecrop agricultural plots (see Figure 5.2 in Chapter 5). In other words, *Avecindados* can still have benefits from land-based resources since their identity is recognized by other members of the community, even when not enjoying the official recognition *Ejidatarios*, *Comuneros* and *Posesionarios* enjoy. The low figures of year average income exclusively from agriculture shows that for all the agrarian categories of households it is necessary to diversify their activities in order to increase their income intake (See Table 5.4 in Chapter 5).

There is a series of activities and strategies that not only landless *Avecindados* but also the rest of household groups put in place to get access to agricultural land. These strategies are more evident when a combination of identities allows –or

restricts households or individuals benefiting from resources. That is the case of the combination of gender with the already mentioned agrarian identities. Figure 6.3 shows the distribution of membership to the different agrarian councils normalized by gender.

Figure 6.3. Distribution of agrarian membership according to gender



Source: *Dataset 1*
 Total households in San Francisco Oxtotilpan: 354.

The distribution of household heads by sex shows that women are more than men only for the group holding both *Ejidatarios* and *Comunereros* membership; hence, it is notable that the majority of households' heads are men. The villagers represented in the figure 6.3 are those recognized as household heads; consequently, all of them have the responsibility to participate in the tasks included in the internal community organization. Whenever it is not possible to participate in the labour-based tasks previously mentioned, they are allowed to send another member of the household or pay a labourer to fulfil this requirement. On the contrary, for administrative-based tasks it is compulsory for the head of the household to attend meetings and assemblies. Whenever it is not possible for

him/she to attend the meeting, they can send their next of kin, however, without voting rights. In interview (I-7), a key informant stated:

“When my husband died I started to claim my rights as *comunera* [Ms Camila Benitez's husband was a recognized *Comunero*], because I wanted to keep receiving money from them. It was very difficult because even with certificate women cannot give their opinion. Now I do not have any problem because I participate in *faenas* and go to meetings. The problem is for my daughter that is not *comunera* and has family. She has to participate in *faenas* as well, without receiving anything [...] I think being woman is not a problem in the town when you have the recognition of the rest of *Comuneros* or *Ejidatarios*. It is worst when you do not have a husband or land to work”

Excluding specific sectors of the community from the benefits derived from the usufruct of resources seems to be a mechanism for maintaining the distribution of benefits among identity-based groups. The last quote exemplifies that *Comuneros* and *Ejidatarios* restrict *Posesionarios* and *Avecindados* from the distribution of benefits while ensuring their maximization of revenue from resources. This analysis does not imply that villagers with no membership are totally excluded from obtaining benefits from resources. As mentioned, if fulfilling the requirements of participation in common tasks, they can have access to common land-based resources; nonetheless, when it comes to agricultural land, the villagers with no membership are divided by their access to agricultural plots.

The practices to gain access to agricultural land are highly linked with the relationships that exist among household members and other actors within the community. These relationships are not necessarily related to ties of kinship, but to the interaction different individuals and households have to maximize their benefits from land-based resources. Accordingly, the boundary in between the different relational mechanisms of natural resource access becomes blurred, and so, it becomes difficult to identify whether the cause of the current access to natural resource is product of social interactions or identity dynamics.

6.4 Access through Interpersonal Relations

When it comes to obtaining benefits from land-based resources, social interactions are as important as the means of production, material assets and market interactions (Berry 1989; Berry 2009). Furthermore, interpersonal relations overcome the ties of kinship to constitute the basis for the conformation of networks of cooperation that ensure the subsistence of specific groups within a community by maximizing their benefits (Scoones 1998; Ellis 2000; Smeeding and Weinberg 2001).

According to Ribot and Peluso (2003:172) “[...] friendship, trust, reciprocity, patronage, dependence and obligation form critical strands in access webs. Social relations are central to virtually all other elements of access”. The analysis of San Francisco Oxtotilpan demonstrates that resource users can gain, maintain or control land-based resources access by making use of interpersonal relations to a) organize themselves into groups or networks of cooperation, and b) concentrate the distribution of benefits among the members of these groups. The following subsections illustrate these findings.

6.4.1 Interpersonal relations and networks of cooperation

When *Matlatzincas* were asked: how do you work your land? There were two frequent answers: with the family, or ‘together’. The notion of working ‘together’ differs from other examples of rural producers and indigenous groups in Mexico (See Collier, 1990). For *Matlatzincas* working ‘together’ implies the labour not only of the members of the household, but the participation of other members of the community that might or might not be related to the household itself (neighbours, labourers from the same community, other socially-related community members, etc.). When *Matlatzincas* speak of ‘family work’ the conception of household arises. Typically family work implies a joint production and consumption process, a process in which not only labour at the agricultural plot is referred, but also the provision of other resources such as water, timber wood, and even occasional wage work earnings that shape the family’s production and consumption cycle. This relative inter-dependency among family members within the household varies according to its structure. For instance, the household size can be modified if dependent members (sons or daughters) get married.

Usually women who marry move to the men's household (especially when the man's household has farmland to be allocated to the new couple as an asset or to labour it). In these cases, households 'adopt' the new members and add them to the household work cycle.

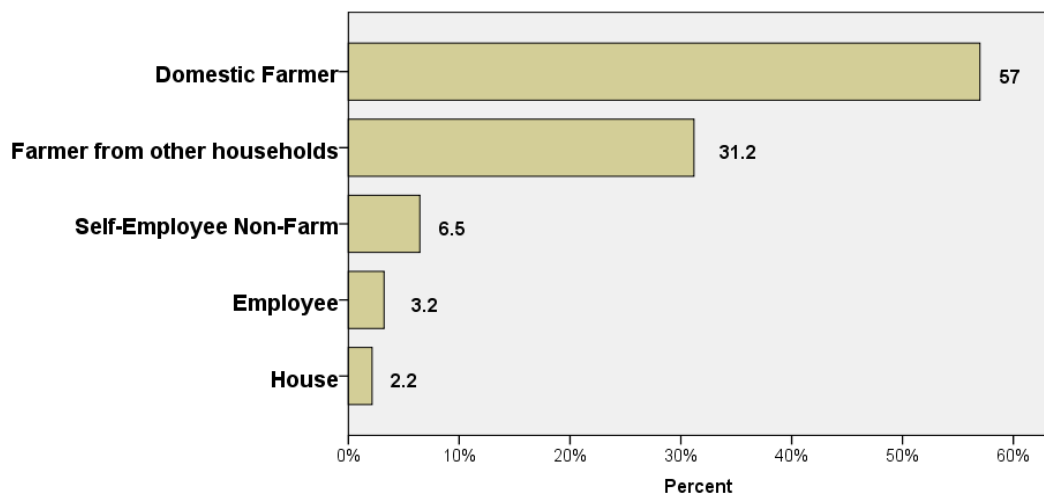
Annexing new members can modify the household internal trends of production and consumption. When the new couple start to have different needs (such as feeding and clothing for other dependents), consumption patterns become 'separate' from the rest of the household, despite living under the same roof and even though sharing practices of production. Under these circumstances, the portfolio of productive activities gets diversified and other livelihoods arise (migration, non-farm activities, etc.). When members of the household engage in these activities, they still need to participate in the household's agricultural production with their own labour or earnings. This participation entitles a right to share the household products such as food, clothing, housing, and ultimately a share of the accumulated assets such as land; as well as support in other areas such as health care, children raise, etc.

There are cases in which the interdependence among household members shifts and those who used to be dependents become the main providers. Household studies in other indigenous groups in Mexico have shown that this process is not only reflected in economic terms, but also in the relations that rule almost every productive activity within the household. Accordingly, (Collier 1990:11), mention that "By virtue of age, mature parents have power over immature children. Through the course of life, maturing children gradually take over the household from their aging parents. Households result for the interplay of such power differentials". In the *Matlatzinca* household, the head is mainly the oldest male or female whose knowledge about agriculture labour dictates the household activities.

The main occupations of the household heads in San Francisco Oxtotilpan are shown in Figure 6.4. As shown, the main activities reported are closely related with agricultural activities; however, it is necessary to highlight that the head of the household reported main activity might not be the main source of income. For *Matlatzincas* the agricultural cycle rules all other everyday activities, including

those related with the way household members are interrelated. Especially on those households recently created, lack of land or agricultural labour opportunities implies taking other activities as the main livelihood. This is the case of those household heads into non-domestic farming or non-farm activities. There are cases in which household members including their heads seasonally migrate to complement their income with non-farm activities out of the village. This situation makes the analysis of activities very complicated since the majority of villagers physically able to migrate have done it, are open to do it in the future or are currently doing it seasonally.

Figure 6.4 Households heads' main occupation



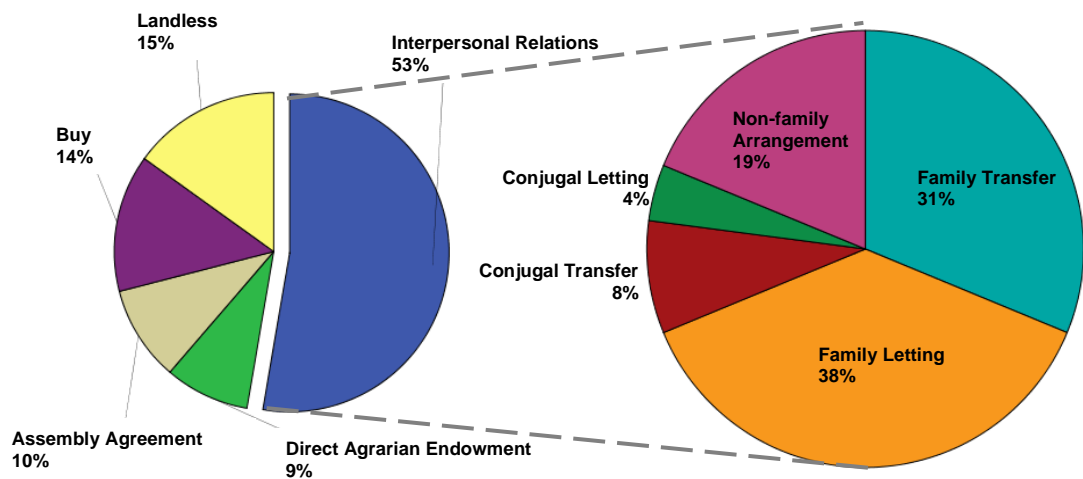
Source: *Datasource 2*
 Sample: n=93 (26.3% of total households)

Figure 6.4 illustrates a very interesting trend in the community, more than 88% of the household heads consider themselves farmers (either domestic or using other households' land). As shown in Chapter 5, income produced by farming activities represents only the 10.9% of the total income generated by household (See Table 5.3). These contrasting figures show that although farming is not the main source of income, community members regard farming as their main activity. Furthermore, it illustrates the deep attachment villagers have to land-based resources. Land-based activities in general, and farming in particular are regarded as the most important activities due to the non-material benefits that land provides. As stated by a villager interviewed (I-8):

“[...] even when half of the year I am away working in Mexico City, I still consider myself as farmer. When I am working away I am not happy; but my family needs to eat! I want my children to grow in San Francisco, where you can still go to the forest, eat from the land, etc. People do not do that in the cities. That is why [all villagers in San Francisco] need a *milpa*.”

Access to agricultural land is a central issue in the *Matlatzinca* livelihood; however, and as mentioned previously, due to property relations related to the land reform process, some households, especially of *Posesionarios* and *Avecindados* are left with no option but to negotiate via social relations their access to agricultural plots. The figure 6.5 shows the main interpersonal relation through which *Matlatzincas* access agricultural land.

Figure 6.5 Access to agricultural land through interpersonal relations



Source: *Datasource 2*
 Sample: n=93 (26.3% of total households)

From the sample taken, smallholders that have accessed agricultural land through direct agrarian endowment⁵¹ represent the smallest proportion (9%). This might respond to the fact that the largest proportion of producers belong to second and third generations of smallholders; in other words, were their parents or grandparents who received direct agrarian endowments. This situation is shared by the national figures that state that in Mexico 17.2% of the current number of

⁵¹ Direct agrarian endowment refers to the legal action by which original *Comuneros* and *Ejidatarios* obtain official property rights from the land reform institutions.

Ejidatarios have accessed agricultural plots by direct agrarian endowments (Robles *et al.* 2000). The low proportion of producers accessing land by assembly agreements (10%) indicates that is not a common practice for both *Ejidatarios'* and *Comuneros'* assemblies to add more members. Even though the agrarian law establishes in its articles 10, 17 and 73 that both *Ejidatarios* and *Comuneros* have the right to devote reserved land to include new members (HCU 1992), neither assembly has land to provide to new members. Consequently, smallholders use other practices to obtain agricultural land. Access to agricultural plots by interpersonal relations is the practice most used by *Matlatzincas*. 53% of the interviewees indicate to have their plots by this way, mainly producers with the smaller plots.

Within the category of access to agricultural land through family relations, family letting is the largest proportion (38%) while the next proportion is family transfer (31%) which implies not only receiving agricultural land from their relatives, but also their place at the *Comuneros* or *Ejidatarios* assemblies. Transferring agricultural land not only implies transferring the actual access over land, but also the recognition among *Comuneros* or *Ejidatarios* as one of them, and as consequence, the recognition of their property rights. Both family letting and transfer might not involve the whole agricultural land possessed by a household. Often family letting involves the subdivision of plots to be distributed among members of the same family, and family transfer also can mean transferring property rights (often from the elder parents) but a fraction of land to ensure that even older people can maintain certain access to agricultural land to fulfil their basic needs. Having access to agricultural plots by interpersonal relations might be a practice that contributes to the agricultural land subdivision. A conclusion like this, however, requires specific research about the trends of inheritance and their possible relations with land reform-related policies such as PROCEDA.

Interpersonal relations are not exclusive for obtaining the possession of agricultural land. The activity that requires the interplay of a vast set of interpersonal relations is agricultural labour. Due to the large number of activities carried out at the agricultural plot during the year, households rely heavily on the participation of other households' members to cope with the agricultural labour.

An essential strategy is to request the help of other household members to carry out specific tasks, under the understanding that these help most be reciprocal. In most of the occasions, there is no wage involved since this reciprocity is based entirely on interpersonal relations and kinship. These strategies not only create working opportunities for landless villagers, but also strengthens the social networks through cooperation and solidarity.

Table 6.1 shows the division of agricultural labour according to household agrarian membership. The table aims to illustrate who participates in the agricultural labour in San Francisco Oxtotilpan and the extent in which some households rely on their interpersonal relations to carry out agricultural labour. The analysis is based on the valid percentage, which does not take into account landless households. Furthermore, it only contemplates the last activity in the agricultural cycle 2008-2009: *Cosecha* (Harvesting) and the first labour to prepare the land before sowing: *Barbecho* (cleaning, burning and ploughing). These are the two activities in which social relations are more used to maximize the benefits of agriculture. Both *cosecha* and *barbecho* are the practices that require more labour force and as consequence more economic resources. As it was explained before, since there are different crops that require different labour, the table is also divided according to the type of land each household has.

Table 6.1. Division of Agricultural Labour^a

Agrarian Status	Participants in <i>barbecho</i> and <i>cosecha</i>	Irrigation Land	Rain-fed Land
		(%)	(%)
Ejidatarios	Household members	47	25
	Household's Men	6	5
	Paid Labourers	0	50
	Cooperation (IR)	47	15
	Total	100	100
Comuneros	Household Members	46	33
	Household's Men	8	7
	Paid Labourers	0	40
	Cooperation (IR)	46	20
	Total	100	100
Posesionarios	Household Members	25	50
	Household's Men	0	15
	Paid Labourers	0	20
	Cooperation (IR)	75	15
	Total	100	100
Avecindados	Household Members	25	46
	Paid Labourers	0	27
	Cooperation (IR)	75	27
	Total	100	100
Households with both Ejidatario and Comunero certificates	Household Members	50	0
	Paid Labourers	50	100
	Total	100	100

a. Source: *Dataset 2*
IR= Interpersonal Relations

The activities carried out for *Cosecha* and *barbecho* vary according to whether the plot is irrigated or rain-fed. For instance, while an irrigated plot it is more likely the use of a tractor; on rain-fed plots two or three scratch-ploughs powered by horses might be more suitable due to the slope conditions and the difficulty of using a tractor. Consequently, households with rain-fed land might require the participation of more people working in *cosecha* and *barbecho*.

According to the data, *cosecha* and *barbecho* are activities that require cooperation among households, especially on irrigated land. 75% of *Posesionarios* and *Avecindados* with irrigated land required the participation of members of other households. As mentioned before, *Posesionarios* and *Avecindados* are more likely to have smaller plots given that they mainly have access to agricultural plots from family relations. Having small plots makes possible to cooperate with other producers with labour force reciprocity. In other words, it is common that when villagers work together with labourers, often the

way of paying is by carrying out the same agricultural work in their labourers' plots. This practice is called working by *jornales*; and so, many producers are considered themselves by their main activity as *jornaleros*. This reciprocity relation can be combined with waged agricultural labour. *Jornaleros* then have the opportunity of accessing labourers by collaborating with the rest of the households on agricultural work, and also getting paid when working as labourers for others. This observation about *Posesionarios* and *Avecindados* is supported by the situation on rain-fed plots. They are the only groups that work their rain-fed plots only with members of the household, or 'together' as explained earlier in this chapter, 50% and 45% respectively.

As analysed previously, rain-fed plots are on average bigger than irrigated plots, and are more often located on the slopes of the surrounding mountains, which make them more difficult to work on. This situation requires more labour force and consequently, all the villagers (with the exception of *Posesionarios* and *Avecindados*) rely more on labourers to help out with the agricultural work. The sample of villagers holding *Ejidatarios* and *Comuneros* rights reported that for irrigated land they use paid labourers and household members labour equally (50%) while for rain-fed land they rely exclusively on paid labourers.

One of the most notable insights provided by Table 6.1 is the extent in which *Ejidatarios* and *Comuneros* put in place interpersonal relations to maximize their benefits from agricultural land. *Ejidatarios* and *Comuneros* with rain-fed land use mainly paid labourers to *cosecha* and *barbecho*. This implies that while villagers that rely more on interpersonal relations to carry out their agricultural activities (*Posesionarios* and *Avecindados*) some villagers might use their interpersonal relations in other ways to obtain benefits from land-based resources. The prime example is illustrated by those villagers using their interpersonal relations to achieve a position of authority among other members of the community. The next subsection explains how this situation allows some villagers to place themselves in a position where they can concentrate the distribution of benefits from land-based resources.

6.4.2 Interpersonal relations and the concentration of benefits

One of the most common characteristics in the political arena in Mexico is the privilege that actors in a position of authority have to concentrate or direct benefits in their individual or group's favour (Nuijten 2004). This situation includes concentrating or distributing benefits not exclusively from land-based resources, but other programmes and activities that produce both material and economic benefits. (Such as direct conditional cash transfers or the provision of development aid programmes). Furthermore, gaining access through authority can be related with who holds the rights over resources (Ribot 1998; Lane 2006). In relation to the land reform process, the main authorities regarding the use of resources within the community are the different groups' *comisariados*; while the mediator authorities between the local village organization and the official government institutions are the *delegados*⁵². Being a local authority can provide privileged access to certain benefits above all when it comes to lobbying or distributing resources. One of the participants at a focus group with *Posesionarios* and *Avecindados* (FG-4) mentioned:

“Sometimes the problem [about solving the problems of the community] is that *Ejidatarios* and *Comuneros* cannot agree on the [distribution] of goods. When *Ejidatarios* or *Comuneros* get *apoyos* (cash transfers or material endorsements) they give them to their own families or friends, even when they do not need them. For example, last administration people were angry because the *delegados* gave to their [families and friends] materials for constructing latrines that the federal government gave. [...] We know who really need the *apoyos* and who has received them because they know the village authorities; nobody watches the authorities and when we need support, sometimes we do not know who to ask for it: *delegados*, *comisariados*, or with the *Jefe Supremo*...”

The last comment illustrates several issues behind the role of authority. First, that belonging or being close to a local authority can imply obtaining benefits from resources in an easiest way. This demonstrates that authority can be seen as a type of social relation, in which individuals fulfil their needs even at the cost of the community's rejection. Second, there are problems related to the boundaries of

⁵² For a discussion about how powers are divided and transferred from the central government to this authority bodies, refer to chapter 4, on the history of land reform in Mexico. Further discussion about the role of local authorities on access to resources can be found in chapter 5.

jurisdictions each authority has. This situation allows individuals holding authority positions or with good relationship with them to maintain and control the distribution of benefits from different notions of what can be considered as legitimate. Other villagers can react by neglecting the jurisdiction of these authority bodies by lobbying the fulfilment of their needs in other legal or customary authorities. Furthermore, when taking authority as an organizational trait “[...] authority is an important juncture in the web of powers that enables people to benefit from things. In effect, authorities are nodes of direct and indirect forms of access control where multiple access mechanisms or strands are bundled together in one person or institution. People and groups gain and maintain access to other factors of production and exchange through them” (Ribot and Peluso 2003:170). The process by which individuals can access positions of authority at the agrarian community level is similar to the processes and politics behind standing for a public position in any politico-legal institution from the State.

Interpersonal relations play a central role when placing individuals or groups in positions where they can determine the distribution of benefits. The analysis of San Francisco Oxtitilpan shows that for some villagers having a close relation with *delegados* and *comisarios* represents either having or being excluded from the distribution of benefits. Besides concentrating the benefits from policies and aid programmes, interpersonal relations with villagers in privileged socio-political positions can be translated into land-based benefits. Farm income is considered here as a benefit based on the economic product of agricultural- and livestock-related activities that are physically associated to land-based resources. Agricultural and grazing lands, when combined with variable inputs and other assets, have been acknowledged as a source of income for rural households (de Janvry *et al.* 2001).

For the *Matlatzinca* case, three activities were reported as sources of farm income: agriculture, livestock activities and renting out land. For *Matlatzincas*, farming activities are embedded in their particular social and communitarian structure. Hence, farming activities illustrate the structural mechanisms put in place not only to obtain economic benefits from these activities, but also for accessing other resources that are difficult to assess in the form of income

generated, but that are valued by their users in terms of their complementary use (the case of fodder, agricultural products, or manure). For better understanding that conclusion, it is necessary first to analyse the distribution of farm income and its role in the conformation of different wealth categories (Table 6.2.).

Table 6.2. Distribution of agricultural land income by wealth ranking^{ab}

Wealth Ranking		N	Minimum	Maximum	Average income (per year)
Well Off	Net Agriculture Income	19	-1000	6700	1787
	Income due to renting out land	19	0	1500	432
	Livestock Income	19	0	62000	6937
Middle	Net Agriculture Income	37	-1060	8360	2252
	Income due to renting out land	37	0	1000	54
	Livestock Income	37	0	17000	2241
Poor	Net Agriculture Income	37	0	10750	3647
	Income due to renting out land	37	0	0	0
	Livestock Income	37	0	11000	1200

a. Source: *Dataset 2*

b. Data expressed in Mexican Pesos per year

The figures of income generated from livestock and renting out land shows that the 'well off' group concentrates the highest means of income, 6937 and 432 Mexican Pesos, respectively. These numbers reflect the benefits 'well off' households can obtain from land-based resources due to their privilege position within the community in terms of access to bigger agricultural plots and technology. For instance, having bigger plots might imply 'well off' households to produce more fodder for feeding their livestock and better infrastructure for maintaining them, plus the possibility to spare some plots for sharecropping and renting out (note that only 'well off' and 'middle' households receive income due to renting out land). While some 'well off' and 'middle' households can afford agriculture to be more an expenditure than a source of income, 'poor' households have at least some net agricultural income, and furthermore, they have the highest mean of net agriculture income (3647 Mexican Pesos). Being 'well off' however does not imply the same privilege income generation in terms of net agricultural income.

6.5 Access through Markets

The ability to obtain commercial benefits from natural resources is ultimately shaped by each producer's degree of access to markets⁵³ (Berry 1989; Ribot 1998; Ribot and Peluso 2003). If understanding market as "the ability of individuals or groups to gain, control or maintain entry into exchange relations" (Ribot and Peluso 2003:166). As mentioned elsewhere, some products obtained from land-based resources are devoted to the local consumption and interchange among households of San Francisco Oxtotilpan. In those cases, the exchange relations mentioned get reduced to the local level and among households. Commercialization of land-based products beyond local markets requires putting in place other access mechanisms; for instance, some agricultural products are yield to fulfil the requirements of pre-arranged buyers. However, the main problem faced by households aiming to obtain economic benefits from land-based resources is the market price attached to land-based products. As stated by a key informant (I-9):

"I produce peas when I have had [revenue] from maize and potatoes. When I have enough money, I contact one of my friends to rent his pickup to take the peas to Toluca. [...] People do not pay the correct price for peas or potatoes; we do not earn what we should. I have seen the products in the market of Toluca and they are really dirty; our crops are irrigated with pure water, we do not use a lot of chemicals and neither selling it with the people that comes to buy here, nor if we sell it straight in Toluca, we will get enough money"

Market constraints (such as the availability of buyers and the difficulty to reach regional or national markets) can modify households' ability to benefit from producing land-based products. The low price of agricultural products in regional markets reduces the possibility of making agriculture a profitable activity. However, the extraction of products whose price is regulated regionally and nationally (the case of wood and mining products) is directed to previously arranged buyers, making mining or forestry more profitable than agriculture. As it has been mentioned before, the usufruct of mining and forestry is exclusive for members of the *Comuneros* and *Ejidatarios* groups respectively. The rest of the

⁵³ Assessing access to markets may include other structures and practices such as access to capital, global prices and taxes, however, the analysis presented here is referred as the exchange relations implemented by the *Matlatzinca* indigenous group to obtain differential access to resources.

villagers can access other products of agricultural and forest land that can be self-consumed or commercialised in local and regional markets. Table 6.3 illustrates the distribution of access to these land-based resources across the different households' wealth categories.

Table 6.3. Use of forest and agricultural products by wealth ranking

	Products	Use	Poor		Middle		Well Off		Total	
			Freq	%	Freq	%	Freq	%	Freq	%
Forest land	Edible Non-Timber products	Self consumption	37	100	31	84	16	84	84	90
		Selling	0	0	3	8	0	0	3	3
		No Use	0	0	3	8	3	16	6	7
		Total	37	100	37	100	19	100	93	100
	Timber	Self consumption	37	100	32	87	12	63	81	87
		Selling	0	0	0	0	0	0	0	0
		No Use	0	0	5	13	7	37	12	13
		Total	37	100	37	100	19	100	93	100
	Wood (housing...)	Self consumption	24	65	22	60	3	16	49	53
		Selling	0	0	0	0	0	0	0	0
		No Use	13	35	15	40	16	84	44	47
		Total	37	100	37	100	19	100	93	100
Agriculture	Crops	Self-consumption	17	46	28	76	15	79	60	65
		Self-consumption + Selling	8	22	4	11	4	21	16	17
		Selling	0	0	3	8	0	0	3	3
		No have	12	32	2	5	0	0	14	15
		Total	37	100	37	100	19	100	93	100

Source: *Datasource 2*

Regarding the use of forest-based resources, the main products for extraction reported were edible products such as mushrooms, herbs and medicinal plants; the use of timber for fuel and the extraction of wood for housing and the construction of fences etc. According to Table 6.3, while 16% of 'well off' and 8% of 'middle' households do not use edible products such as mushrooms, medicinal and edible herbs, the total number of 'poor' households uses them for self-consumption. Even though the high value in the regional markets of some varieties of wild mushrooms, 'poor' household do not carry out selling. This might respond to the difficulty for reaching markets that without the means for distribution leave 'poor' households with no option but to self-consume these products or interchange them

locally. 8% of the households placed in the 'middle' category reported to sell *Pulque*. This fermented beverage extracted from Maguey (*Agave salmiana*) is highly valued in the region. Villagers report that due to the intensive extraction of *pulque*, in the last 25 years Maguey plants are scarce. It is referred that before people could find Maguey in the forest and near the rivers and now Maguey have to be planted and only a few producers remain.

None of the respondents stated to sell wood either for fuel or construction purposes. The strong regulations on forest resources extraction and the punitive standpoint federal authorities take on that respect, creates an environment in which no household member would admit selling wood, even though in a separate section of the survey questionnaire respondents provided data on how often they buy and the price of timber. Besides this situation, 'poor' households use both timber and wood to cover their own needs. Households in the 'middle' and 'better off' wealth categories rely less on timber and wood given their access to other fuel sources (gas, gasoline, electricity) and construction materials (concrete, bricks, etc).

The data obtained from the survey questionnaire shows that the majority of villagers (90%) collect edible products for self-consumption. Since the collection of these products is seasonal and scarce, selling outside of the community is not economically worthy. The products that could be commercially used would be the mushrooms that are highly valued in the nearby towns and within the same community; however, the difficulty to commercialise and their low prices make mushroom collection almost entirely devoted to self-consumption. On the use of timber, Most *Matlatzincas* use timber for fuel in different proportions. Even though the combination of timber with tanks of gas is common, cooking and the traditional *Temazcal* bath, use timber as their main fuel source. Wood for construction is also a very important activity. When there is forest exploitation⁵⁴ *comisariados* have a list of household heads that requested wood stripes or beams for their use in construction.

⁵⁴ Regularly these forest exploitations are supervised by local authorities and official government representatives who indicate the specific trees that should be logged down.

The introduction of concrete and other construction materials, partially supported by government programmes is shifting the way in which the traditional *Matlatzinca* house used to be built; the wooded roof and *adobe* walls are substituted by asbestos sheets and concrete bricks. It is notable that none of the respondents stated selling timber or wood. It might be possible that selling wood could be a complementary livelihood activity, however, since the regulation on wood extraction and commercialization is extremely strict and punitive it would be extremely difficult for any community member to provide information about the amount of wood used for illegal commercialization.

The figures on the use of crops show that the agriculture carried out is mainly directed for self-consumption across the three wealth categories. Households whose yield is devoted both to self-consumption and selling are linked with the production of special varieties of maize, broad beans and beans. These crops find easier accommodation in local and regional markets, where even members from the same community sell their products to their neighbours. Hence, 32% of 'poor' households rely on partial selling of some products mainly within the community, while the 21% of the 'well off' households also rely on partial selling. Participants in a group discussion referred that 'well off' households' partial selling is more closely related with maize and potatoes production. When producers have yield surplus, they can separate the maize and potatoes needed for self-consumption and when having the means for transportation or the connections with buyers, they can sell their crops in the regional markets. 11% of 'middle' households sell one single crop. Potatoes, peas or broad beans are more commercial products that have proven being more profitable than the production of maize alone; however, these crops also require irrigated land, fertilizer and labour whose 'poor' households might have restricted access⁵⁵.

Wood is obtained from extractions supervised by the CONAFOR (Forestry National Commission), and the largest extraction plots are concentrated in *Ejido* land; hence, the income generated from this activity is distributed among members of the *Ejido* council. While *Comuneros* also have smaller wood

⁵⁵ For an extended discussion about the role of technology in shaping the distribution of benefits from land-based resources, refer to chapter 7.

extraction plots, their main natural resource-related income comes from the extraction of construction materials from the local mine. Table 6.4 shows the distribution of income derived from extractive activities carried out by the households of San Francisco Oxtotilpan. It shows the average income produced by activities carried out by *Comuneros* and *Ejidatarios* and the commercialization of other land-based products.

Table 6.4. Income generated from the commercialization of land-based products^{ab}

	N	Sample %	Minimum	Maximum	Average Income
<i>Ejidatarios</i> (Forestry)	26	28%	3000	15000	7615
<i>Comuneros</i> (Forestry and mining)	28	30%	1000	9000	4857
Other (Pulque, Mushrooms, Plants etc.)	4	4%	100	12000	3075
Valid N (list wise)	58	62%			
Total Sample	93	100%			

a. Source: *Dataset 2*.

b. Data expressed in Mexican Pesos per year

Table 6.4 is helpful to understand the importance of the extraction of the land-based resources mentioned for those who carry on the extractive activities. Accordingly, 62 % of *Matlatzinca* households obtain direct cash income from land-based resources. Studies about the availability of edible non-timber products in Mexico suggest that these resources have an enormous potential for improving the general situation of households and forest resources to the extent in which due to the low prices and profitability of crops, non-timber products can overtake agriculture as income generator (Marshal *et al.* 2006; Pulido and Caballero 2006; Fu *et al.* 2009). However, what is observed in the *Matlatzinca* case is the contrary; while for similar rural communities in Mexico rural highlands non-timber edible products represent either the second- or third-most important source of cash income (Marshal and Newton 2003), for *Matlatzincas* it does not only represents the smallest source of natural resource cash income, but also the smallest proportion of participants in this activity (4% of the sample). Improving income generation from this source would represent investments in production processes, integrating these products into market value chains and more controls about quantity and quality extracted (Belcher and Schreckenberg 2007); characteristics

that *Matlatzincas* do not contemplate due to the self-consumption character of these products.

Even though *Comuneros* have a more diversified income portfolio that includes mining activities, and small supervised wood extractions, *Ejidatarios* obtain more average income from a single activity: wood extraction. This responds to the extension of forest land within the *Ejido*. Being larger than the one in *Tierras Comunales*, *Ejidatarios* have near-permanent wood extraction programmes, in which CONAFOR representatives design the extraction pits based on the presence of forest plagues –mainly Pine Beetle (*Dendroctonus adjunctus*). CONAFOR representatives make calculations about the volume of wood extracted with the help of a national price tabulate; the final price of the extracted wood is then calculated and paid to the *Ejidatarios* council.

Consequently, it is possible to conclude that even though the high productivity and expansion of the *Comuneros* mine; *Ejidatarios* still obtain more income from the extraction of wood. The rising prices of wood and the availability of this resource provide *Ejidatarios* the possibility of distributing the revenue from extractive activities in more instalments a year among their members. For instance, *Comuneros* report receiving in average two instalments per year of nearly 2500 pesos each, while *Ejidatarios* distribute their revenue from wood extraction three to four times a year of nearly 2000 pesos.

6.6 Access through Knowledge

A central component of organizational relations is knowledge (Berry 1989). On one hand, knowledge is essential for indigenous organizations around resources because it permeates all activities and make up different patterns of resource use (Mariaca Mendez *et al.* 2001; Barkin 2003; Eisenstadt 2007; Boege Schmidt 2008). Knowledge has been considered crucial when assessing indigenous groups capacity to engage effectively in a range of planning activities, which are the base of organizational relations around natural resources access (Hibbard and Lane 2004; Lane 2006; Hibbard *et al.* 2008).

Control over information and knowledge plays an important role in providing different means by which both communities and individuals gain access to

resources (Ribot 1998; Ribot and Peluso 2003). Discourse becomes the means by which it is possible to obtain and transmit knowledge; as well as using it in favour of the community. By taking the position of the indigenous movements in Mexico, *Matlatzincas* have found on the claim for indigenous rights a ground to address federal authorities when it comes to demands for goods and services. Accordingly, one of the participants in a focus group with local civil authorities (FG-1) mentioned:

“We have to go through all the legal procedures to obtain what we want; if we need wood, we inform CONAFOR [Forestry National Commission] to come and let us know what trees to cut, when we need to fix roads, or when we needed a doctor based on the community we demand it to the government [...] Whenever the municipal or State government does not do anything or when is taking too long to receive the support, we claim it as an indigenous group. We have got lots of things from the federal government because we are indigenous [...] the government is afraid that we would fight against them”

However, knowledge not only plays in favour of the community. It has been reported that the prices that *Matlatzincas* receive when commercializing land-based resource products such as crops and wood (whenever there is a supervised extraction) are not based on the official tabulators. A dramatic example occurs with the commercialization of agricultural products such as peas or potatoes. On interview (I-7), one of the villagers commented:

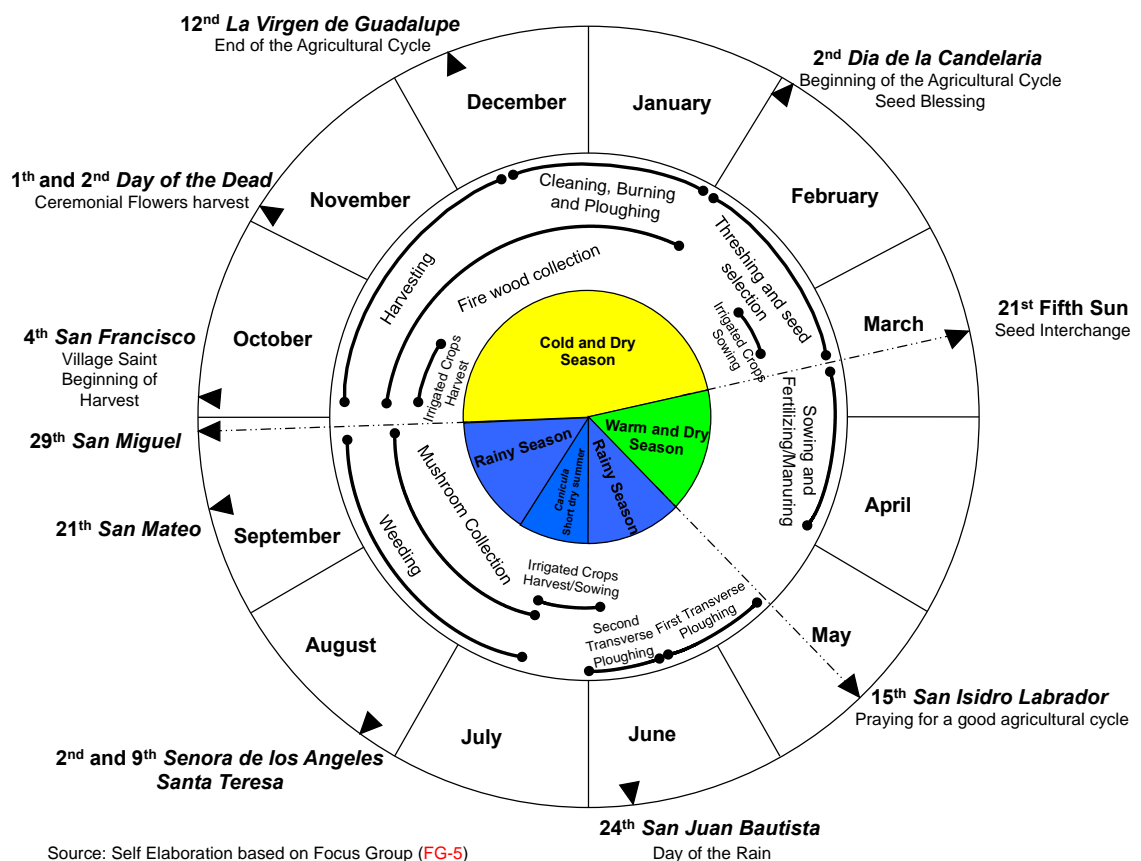
“The only things I produce for selling are peas. When harvesting I need to pay two or three labourers each sack harvested, then I need to pay the truck for each sack transported. Once arrived in Toluca, I need to pay a fee on the market for each sack to be sold. Imagine, when I finish selling all the sacks, I just get enough money to plant the same amount of peas. Sometimes I do not have any revenue, and is worst when I cannot find a cheap transport”

Merchants may lie about the real prices of fuel, taxes or even prices of products at the local market. When producers do not have the knowledge about how to find out the real prices, they often face problems such as the one mentioned before. In order to avoid this situation, the group of *Comuneros* organizes a committee to find out about the current prices of mining products, fuel and transportation; they

maximize their benefits by offering prices according to the expenses they have on producing mining products.

Knowledge over natural resources and the practices involved around obtaining benefits from them is central to constructing, and defending when necessary, claims over resources access-control (Ribot 1998; Ribot and Peluso 2003). For *Matlatzincas*, as for many other indigenous groups in Mexico all the productive activities rooted in the different means by which they obtain benefits from resources are embedded in the agricultural, climatic and traditional calendar (Wolf 1956; Barrera Bassols and Zinck 2003; Ochoa Avalos 2007; Boege Schmidt 2008). Figure 6.6 shows the calendar according to the *Matlatzinca* festivities, climatic perception and the labours carried out in a year⁵⁶.

Figure 6.6. *Matlatzinca* climatic, agricultural and religious calendar



⁵⁶ For an example of this calendar but in the context of the *Purepecha* indigenous group carried out in 2003, see Barrera Bassols and Zinck (2003).

Knowledge about the way in which the different religious, climatic and labour stages influence the availability of certain natural resources is central on the *Matlatzinca* organization. It is possible to identify the different ways in which villagers obtain different benefits out of the different activities carried out during the agricultural cycle. In terms of the perceived climatic characteristics of their territory, *Matlatzincas* divide the year in three different seasons according to the temperatures and the rain conditions. This subdivision indicates the timing of extractive activities such as mushroom and timber collection. Agricultural labour around irrigated crops is more closely related with the changes in temperature and rain conditions of each year. Hence, potatoes, peas, beans and broad beans and maize on irrigated land are sowed two times a year (early March and early July) according to whether the cold and dry season or the *canícula* (short dry summer in between the rainy season) are longer or shorter.

The beginning of the agricultural cycle is considered to be the 2nd of February. This day producers gather in the central church with the maize seeds to be used that year. The *Jefe supremo* blesses the seeds and the land is then threshed to prepare it to planting maize. The fifth sun (March 21th) is one of the most important festivities for *Matlatzincas*. It coincides with the equinox and represents the re-birth of the sun. The fifth sun indicates the precise moment for fertilizing the land and planting the maize. Since the varieties of maize differ from producer to producer, they interchange their seeds to try out new varieties that might be better according to their taste, colour or usage (consumption as *tortilla*, *tamal* or *elote*, or for livestock). This practice is very important not only in terms of genetic conservation, but as knowledge transmission since the villagers interchange not only the seed, but also the information obtained at using it.

For the beginning of the rainy season, villagers gather to pray for a good agricultural cycle. They take the image of *San Isidro* around the village, and a ceremony is organized to bless the ploughs and other agricultural tools⁵⁷. During

⁵⁷ During celebration of *San Isidro Labrador* an image of the saint is taken around the village while mainly the men of the village dressed like women dance around. The elder members of the community encourage above all the youth to participate. These dances represent for the *Matlatzinca* group the union between men and women and the equity that should exist between men and women.

the transverse ploughings and the weeding, plants are collected from the plots to use as livestock fodder. 21st and 29th of September are festivities in which the two neighbour villages (San Mateo Almomoloa and San Miguel Oxtotilpan) invite the people of San Francisco Oxtotilpan to celebrate their day. The images of the saints of the three villages stay in the other village for a week in turns. These festivities help to strength the relationship of San Francisco Oxtotilpan with its neighbour villages and at the same time agreements on production or commercialization among the communities are arranged. September the 4th marks the beginning of the harvesting. Harvesting irrigated crops goes first, while the crops produced on rain-fed plots are harvested until mid December because they take longer and the fodder product of these crops (maize stock, ears and other grasses) is collected and stored. For 1st and 2nd of November, some villagers harvest ceremonial flowers called *compazuchitl* (*Tagetes erecta*) to be sold locally or in the neighbour communities. The period between mid December and the 2nd of February is acknowledged as a preparation stage before the agricultural cycle starts again.

6.7 Conclusions

There are two main concluding remarks to highlight from the analysis presented in this chapter. On the one hand, the empirical data in which the analysis of structural and relational mechanisms is based also shows a close relation with the process of land reform currently happening in Mexico. On the other hand, locating the means in which this chapter is focused as the structural and relational mechanisms depends directly on the context of the agrarian community selected as a case study.

The early 1990s land reform still has influence on the way in which agrarian communities in Mexico access land-based resources. Furthermore, the process of land reform has modified the structure of the agrarian community in different ways. The distribution of authority among the local governance bodies has been changed due to the introduction of new authorities at different levels of the State-based politico-administrative system. The structure of the community also changed when it comes to market access. The data shown illustrate a common case in rural communities in Mexico, where groups of households with the means of controlling and appropriating the market of products get together to maximize

their benefits. Those groups of households with the means to control agricultural products commercialization constitute themselves as market elites that in turn control access to regional markets.

The social relations at the community level also provide important insights about the effects of land reform at the agrarian community level. Relations based on authority, and knowledge together with interpersonal relations are mechanisms that can help households to work together towards achieving common objectives, but also can restrict other groups within the community accessing different benefits from land-based resources. In that respect, structural and relational mechanisms are enacted to limit and/or facilitate access to different groups or individual households.

Regarding the second concluding remark, the analysis of structural and relational mechanisms responds to the context observed during the collection of empirical data. As mentioned on the analytical chapter, the mechanisms of access are heuristic and deeply attached to the research context. This implies that structural and relational mechanisms are dynamic, and their effects can be perceived in the long term. The case of knowledge provides a representative example of this issue. While knowledge can also be characterized as a resource that individual households can use to obtain benefits, knowledge was analysed in this chapter as a structural and relational mechanism that is shared among the whole community; a mechanism shared, developed, and tuned across generations that dictates for instance, when and how to carry out agricultural activities.

Structural and relational mechanisms help to understand how different social actors of an agrarian community benefit from land-based resources available. However, structural and relational mechanisms are not the only mechanisms that shape the distribution of benefits from land-based resources. Control over other productive resources (financial capital, technology and labour) plays a central role on the distribution of benefits from land-based resources. In order to provide an empirical map of the different mechanisms and factors that shape the distribution of benefits from land based resources, next chapter deals with the way in which

the *Matlatzinca* group control other productive resources to benefit from land-based resources.

Another characteristic of structural and relational mechanisms is their dynamism. In the case of San Francisco Oxtotilpan, structural and relational mechanisms provide the villagers with long-term benefits from land-based resources. Even though most of the quantitative analysis is referred to a single agricultural cycle, the networks of cooperation that surround structural and relational mechanisms are likely to remain stable throughout wider periods of time. For instance, interpersonal relations based on kinship, or knowledge will keep providing benefits as long as the social relations between households are not lost. It was observed that some productive resources provide benefits in shorter periods of time. Unlike structural and relational mechanisms control over these resources can change in shorter periods of time (for instance in between agricultural cycles)⁵⁸. The next chapter focuses on how control over these other productive resources shape the distribution of access to local land-based resources.

The combination of the empirical analysis of both structural and relational access mechanisms and control over other productive resources provides an explanation as to how it is possible to observe differences among households and groups of households within an agrarian community. Furthermore, it helps to achieve a better understanding of the distribution of benefits from resources according to the particularities of any given agrarian community. There is a critical need for recognizing that diverse agrarian communities make use of access mechanisms in different ways, according to the way in which their members cope with the implementation of land-based policies that ultimately influence who and how to benefit from land-based resources.

⁵⁸ Other productive resources –financial capital, labour and technology are not necessarily linked with land-based resources. These resources are dealt in depth in the following chapter.

CHAPTER 7. CONTROL OVER OTHER PRODUCTIVE RESOURCES

7.1 Introduction

When it comes to land-based resources, the structural and relational access mechanisms discussed in Chapter 6; identity, interpersonal relations, markets and knowledge, are located at the core of the structure and organization of the agrarian community and in the social relations between groups of households. However, in order to obtain benefits from land-based resources, households not only use structural and relational access mechanisms, but also a series of other productive resources that provide them with alternative strategies to obtain benefits from land-based resources. These strategies are based in the distribution of productive resources that are not necessarily related to land-based resources. As mentioned in the theoretical chapter, the distribution of access to land-based resources is determined by both access mechanisms and control over other productive resources; for the case of this study, labour, financial capital and technology.

These other productive resources constitute the means by which individual households can implement a series of strategies that allow them to derive benefits from land-based productive activities. Hence, control over financial capital, labour and technology constitute the means by which households can mediate the distribution of benefits from land-based resources. The focus of this chapter is to illustrate how control over other productive resources provides different benefits across an array of socially, economically and politically differentiated households. Therefore, the analyses included classify households in San Francisco Oxtotilpan according to their wealth and their agrarian status. The former provides a clearer idea about how the benefits from resources are distributed among households by the use of income as an access indicator. The latter exhibits the extent by which Mexico's land reform has transformed productive activities beyond land-based resources.

The most relevant example of the way in which other productive resources allow households to obtain benefits from land-based activities is migration. San

Francisco Oxtotilpan has important migratory patterns that illustrate the role of other productive resources and their effects on the distribution of benefits from land-based resources. Hence, migration constitutes a productive activity that both diversifies livelihoods locally and provides the means to obtain financial capital, labour and technology.

To assess the extent in which the distribution of control over other productive resources affects the way in which households of San Francisco Oxtotilpan benefit from land-based resources, this chapter is divided into four sections including this introduction. Section 7.2 reviews the distribution of financial capital, labour and technology in the *Matlatzinca* community. This section aims to provide empirical evidence as to how these productive resources shape the distribution of benefits from land-based resources in the case study. Section 7.3 looks at migration and its role framing the relationship between control over other productive resources and the distribution of benefits from land-based resources. The final section includes the chapter's conclusions and final remarks.

7.2 Distribution of other productive resources

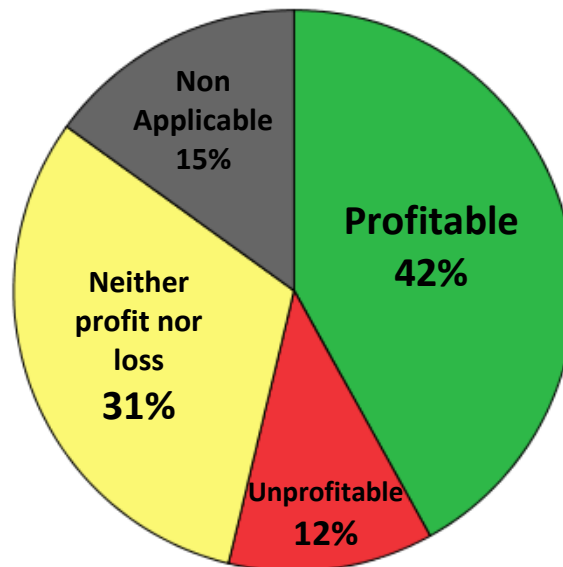
Understanding households's control over other productive resources complements the analysis of structural and relational mechanisms. While structural and relational mechanisms are dynamic and changing in relatively short periods of time (for instance between agricultural cycles), control over other productive resources can be considered fixed during the period of reference. In this regard, controlling other productive resources has effects in the long term. Hence, households seek control over financial capital, labour and technology in order to diversify their livelihoods in the long term, especially considering the perception towards the profitability of land-based activities in agrarian communities of rural Mexico.

The main aim of this section is to provide an analysis of how control over other productive resources (financial capital, technology and labour), is distributed among households in San Francisco Oxtotilpan. However, it is necessary first to highlight the role of other productive resources on farming activities. When it comes to rural communities it would be possible to argue that farming activities

would be central in terms of income generation. However, the *Matlatzinca* case shows that farming activities are socially bounded in the indigenous and communitarian structure. For this reason, it is still possible to find households for which agriculture represents expenditure rather than an income source (See Table 6.2 in Chapter 6). As one of the participants of the wealth ranking group discussion (GD-1) stated:

“[...] Agriculture is not what it used to be. My parents used to produce *pulque* and maize and those were their only activities. They were among the richest [villagers]. [...] I have enough land to produce, but the prices are so low that I just produce maize for my own consumption. I will never stop producing maize, because it gives me food for my family, and [fodder] for my horses and sheep. [...] my family cannot live with only my earnings from my crops; people have to raise some sheep, have a business or work outside the community to earn enough money to feed their families, and keep producing crops”

This comment supports the idea that in terms of income generation agriculture has to be complemented by other activities; that is the case of other sources of labour, or livestock. However, through carrying out agricultural activities, households can derive benefits from land-based resources that go beyond income generation. For households whose main income source (in terms of farming activities) is livestock, agriculture is directed to fulfil the need for cheaper fodder that can be obtained from the agricultural plot. However, being the role of the *Milpa* central to the household cultural and nutritional patterns, agriculture is likely to remain acknowledged as ‘the main’ activity of *Matlatzincas* even though its relative low impact on income generation. Figure 7.1 deals more in depth with the perception towards the profitability of farming activities in San Francisco Oxtotilpan.

Figure 7.1. Perception of farming as a profitable activity

Source: *Datasource 2*
 Sample: n=93 (26.3% of total households)

Figure 7.1 includes data from the participants of the survey questionnaire (*Dataset 2*). Respondents were asked to what extent farming activities (agriculture with renting out land and livestock) were considered profitable in terms of income generation. In general terms, the minority of respondents consider farm activities as a profitable activity (42%). This figure illustrates the role of farming as a set of complementary activities in terms of household income generation. 12% of the households that carry out farming activities reported them as unprofitable. The rest 31% of the sample reported having neither profit nor loss. Among *Matlatzincas*, there is a generalized perception of agriculture as complementary to the more profitable livestock activities; that is the reason why households that rely more on agriculture reported neither profit nor loss from farming. This situation also responds to the permanent interchange of inputs that exists between livestock and agriculture; e.g. while the plants of specific crops such as maize and broad beans provide fodder, livestock in turn provide manure to fertilize the plot.

The perception of farming as an activity that neither provides profits nor loss refers more to the processes of trade off between the different activities. As illustrated by this villager interviewed (I-10):

“I know [agriculture] is not good as a business. I produce some maize and broad beans not to sell, because I know they are really cheap. Rather I produce that because I need to feed my family and sheep and cows. The money I get from selling my maize and broad beans is not enough to maintain my family and livestock, but at least I am not paying more money for fodder or fertilizer”

Although in general terms having diversified farming activities imply obtaining different benefits besides agricultural products, the inputs required to maintain both agricultural plots and livestock are considered expensive. Therefore, inputs such as seeds, fertilizers and herbicides for agricultural production, or vaccinations and special fodder for livestock, limit the net profits that farming activities might produce. As shown by the previously quoted farmer, income is only a sub-product of farming activities; other products obtained can be appreciated not in terms of its economic value, but in terms of the extent in which these products can make easier obtaining benefits from other sets of activities.

Figure 7.1 provides a clear idea about the perception of access to land-based resources, specifically about farming activities. The insights provided support the affirmation made by one of the participants of the wealth ranking exercise (GD-1):

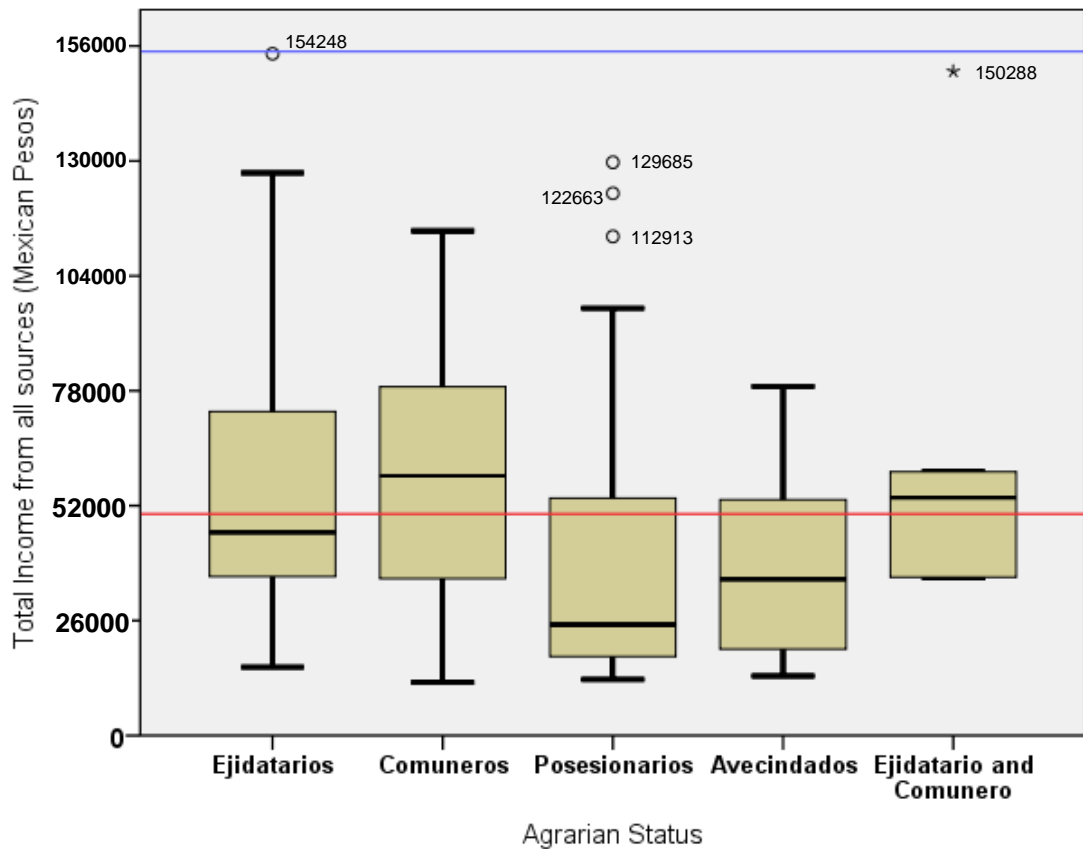
“For many years we have realized that we cannot live from farming alone. Although having sheep and cows is more profitable, it is still not enough to live. If there are many people living in San Francisco now, is because we have other sources of money. [...] All of us are farmers, but sometimes our main source of money is not in our land. I like living here because of other reasons, not because of the money I get from my crops. If it was about money, I would have left the village years ago”

The ‘other reasons’ to stay in the community referred by this villager related to the non-material benefits provided not only by land-based resources, but also from living in the community itself. Given that farming is considered less profitable than other activities; and due to the households’ need to diversify their portfolio of productive activities, it is necessary for them to control other productive resources to obtain the means by which it is possible to benefit from land-based resources. The following subsections review how other productive resources are distributed among the households of San Francisco Oxtotilpan.

7.2.1 Control over Financial Capital

Following the precepts of the analytical framework designed, this research refers to financial capital as the finances and assets that can be turned into income. Furthermore, income can be understood as an important component of wealth (Grandin 1988; Berry 1989; de Janvry and Sadoulet 2001). In the same way in which income has been used in this research as an indicator of one of the benefits households can obtain from land-based resources, wealth is a form of financial capital that comes as a result of accessing land-based resources, but also can be used by households as a means to derive benefits from them. For instance, in previous chapters it has been highlighted the way in which having official property rights, belonging to a shared identity, or having more interpersonal relations allow different households to be ‘well off’ or ‘richer’ than others (wealth has been regarded as a benefit derived from land-based resources). However, wealth can also be put into service of specific households to derive benefits from land-based resources.

To better understand how income and wealth can be used as the means by which different households can obtain benefits from resources, it is important to review the way in which these components of financial capital are distributed among San Francisco Oxtotilpan households. However, it is necessary to compare different classifications of households in terms of income distribution. Hence, Figure 7.2 shows the distribution of income according to the agrarian structure provided by the land reform process in Mexico.

Figure 7.2. Total household income per year by council membershipSource: *Datasource 2*

Sample: n=93 (26.3% of total households)

The distribution of total income per year shown in the previous figure is distinguished by agrarian council membership to illustrate the economic position of the different agrarian groups in San Francisco Oxtotilpan. According to official data from the World Bank (2008) *individuals* obtaining between (Mexican Pesos) 50,128 –red line, and (Mexican Pesos) 154,765 –blue line can be considered in the upper-middle income group⁵⁹. According to the sample analysed, the mean income per year from all sources in San Francisco Oxtotilpan is (Mexican Pesos) 50843; therefore, according to the World Bank classification, San Francisco Oxtotilpan falls into the lower income group. Figure 7.2 indicates that *Posesionarios* and *Vecindados* are the groups with lower income since the lower

⁵⁹ Although this official classification has been used on income analysis at national levels, these figures provide a clearer idea about the income distribution from an International Funding Institution perspective. It is necessary to take into account that findings expressed here are based on household, rather than individual incomes. Hence, if dividing these figures among the household size, surely *individuals* in San Francisco Oxtotilpan would fall into lower official categories.

and the upper quartiles falls under the boundary of (Mexican Pesos) 50,128. This might respond to the combination of access mechanisms discussed elsewhere that place *Posesionarios* and *Avecindados* as the most disadvantaged groups when it comes to the distribution of benefits from land-based resources. *Comuneros* is the group with better income since both upper quartiles are above the lower range of the official upper-middle category.

Given the analysis of land-based productive activities carried out elsewhere in this thesis, it is important to highlight that income is a benefit obtained not exclusively derived from land-based resources. Hence, other activities not necessarily related to land-based resources complement households' income generation. That is the case of all the activities carried out outside the unit of production (agricultural plots and farms) in possession of the household. These wide arrays of activities are referred as off-farm activities.

There is a large body of literature dealing with the growing role of off-farm income on rural households' diversification, employment and rural income growth (Reardon *et al.* 2001; Woodruff and Zenteno 2007; Haggblade *et al.* 2009). Furthermore, off-farm activities have been seen as complementary to farming activities (Leones and Feldman 1998; Ellis 2000; de Janvry and Sadoulet 2001; Haggblade *et al.* 2009). As shown in previous sections, the *Matlatzinca* case shows that landless or near landless 'poor' households with limited access to land-based resources might rely more on income generated in off-farm activities. Hence, in terms of financial capital, off-farm activities constitute not only the means by which these households can diversify their income generation, but also, and consequently, their ability to benefit from things, included land-based resources (Blaikie 1985; Bunker 1985; Berry 1989; Ribot 1998; Ellis 2000). Consequently, this subsection sees off-farm activities beyond their potential to generate income, but as part of the set of other productive resources that by controlling them households can benefit from land-based resources⁶⁰.

⁶⁰ The analysis presented here centres its attention on the importance of off-farm activities on increasing individual households' access to land-based resources, even when these activities are not related with the resources available (with the exception of off-farm income generated from natural resources). Discussions about the role of other factors to increase off-farm income are left aside. For instance, issues about education as an important factor to obtain better remunerated non-

Table 7.1 shows the average income per year produced by off-farm activities according to the different wealth categories. ‘Off-farm income’ refers to activities carried out outside the households’ units of production (agricultural plots, livestock and grazing land –either common or individual). Income produced by the commercialization of non-timber products, and the income generated from *Comuneros* and *Ejidatarios* activities are referred as ‘natural resource income’, and ‘remittances income’ indicates the income sent by migrating household members.

Table 7.1. Off-farm income distribution by wealth ranking^{ab}

Wealth Ranking	N	Minimum	Maximum	Mean income (Per year)
Sum of all non-agricultural income	19	3900	122800	42926
Well Off Natural Resources Income	19	0	16000	6789
Remittances Income	19	0	15500	5679
Sum of all non-agricultural income	37	7500	123140	51975
Middle Natural Resources Income	37	0	12900	6093
Remittances Income	37	0	31000	2797
Sum of all non-agricultural income	37	7400	75900	24722
Poor Natural Resources Income	37	0	6800	508
Remittances Income	37	0	6800	1145

a. Source: Datasource 2

b. Data expressed in Mexican Pesos

Table 7.1 shows that non-agricultural income represents the most important off-farm activity in terms of income generation. As continually concluded, ‘middle’ households have the largest non-agricultural income; however, the average year income obtained from natural resources and remittances is largest for the ‘well off’ households. The differentials of average incomes per year across the wealth groups indicate the degree of diversification that each group of households has. For instance while ‘well off’ and ‘middle’ households obtain relatively high earnings from all sources, ‘poor’ households have more disparities among their off-farm earnings. Households with more off-farm income disparities need to diversify more their activities in order to increase their benefits from resources. Households with fewer off-farm income disparities have found an “equilibrium

agricultural income (de Janvry and Sadolet 2001), or the role of non agricultural income on household poverty alleviation (Reardon *et al.* 2001; Haggblade, *et al.* 2009) are matters that, although relevant for the study of rural household economic relations, do not offer insights on the analysis proposed in this research.

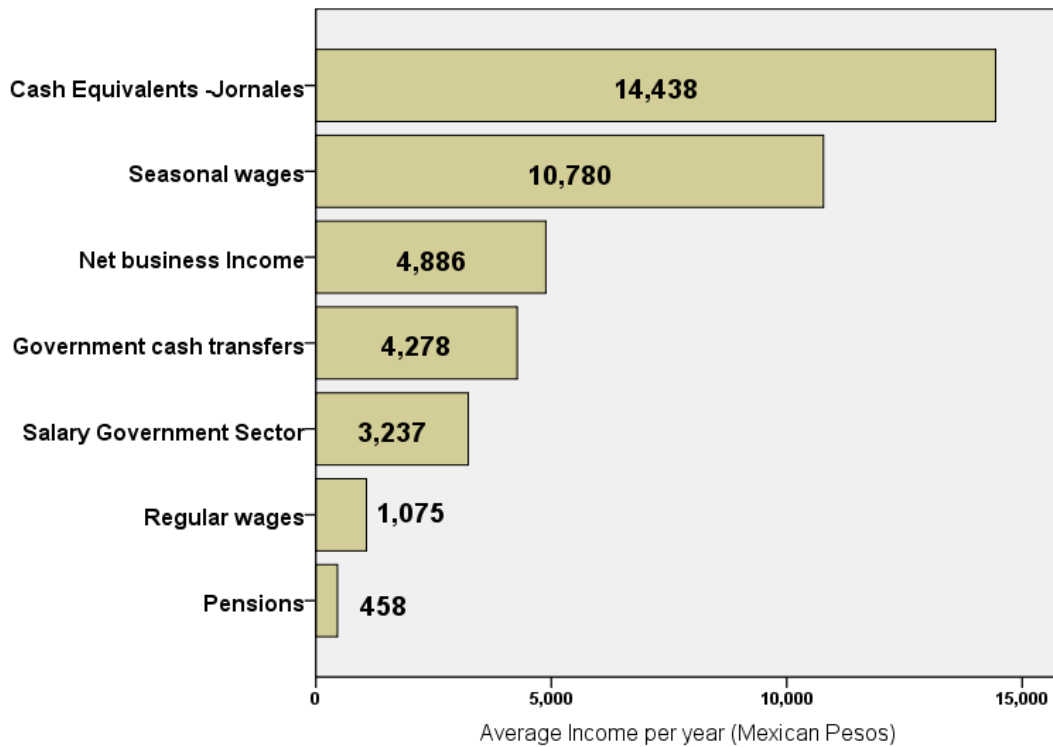
point” in which putting in action the different access mechanisms, provides them with more privileged benefits; and consequently, less need for diversification⁶¹. To find out about this statement, it is necessary to analyse the organizational structure around non-agricultural activities to better understand the previously mentioned income differentials.

The classification of non-agricultural activities includes a very complex and wide income portfolios. Therefore, non-agricultural activities not only provide the majority of household off-farm income (see Table 7.1), but also reflect the diverse activities and strategies that each individual member of a household puts in place to collaborate with the general household wellbeing⁶². Figure 7.3 shows the distribution of average yearly income generated through non-agricultural activities⁶³.

⁶¹ Diversification has been defined as “the maintenance and continuous adaptation of a highly diverse portfolio of activities in order to secure *survival* that is a distinguishing feature of rural livelihood strategies (Ellis 2000:290 *My own emphasis*)”. Diversification, therefore, aims at the survival of the household –in terms of adaptation, coping with impacts, resilience, etc; rather than the simple increment of income generation.

⁶² In this respect, further research about the role of household size is relevant to understand how the different wealth ranked households increase their non-agricultural activities according to the number of household members carrying out these activities. In other words, the extent in which household size modifies non-agricultural income generation.

⁶³ It is necessary to highlight that the data presented in figure 7.3 represents the average income per year for the whole sample (n=93). It is presented like this to make emphasis on the importance of these activities at the community level.

Figure 7.3. Non-agricultural income sources

Source: *Datasource 2*

Sample: n=93 (26.3% of total households)

Analyses of non-agricultural income sources are relevant for understanding how other productive activities are the means by which the members of the agrarian community can derive financial capital. The largest non-agricultural income source is the reception of cash equivalents in the form of *jornales*. In the majority of rural communities in Mexico, a *jornal* is used for measuring a workday. A *jornal* in San Francisco Oxtotilpan can remunerate the worker with cash, or with reciprocal workdays; when the worker needs money, the price of a single *jornal* is agreed, and when the worker needs reciprocal labour, they set a date to ‘return’ the *jornal*⁶⁴. This figure supports the idea that the benefits derived from off-farm activities are not exclusively in terms of income generation. Participating in *jornales* can provide money, or its equivalent in terms of reciprocal labour. Seasonal wages differ from *jornales* because the seasonal wages require

⁶⁴ Even though *jornales* are mainly related with agricultural labour, this activity was not included as a farming activity because by definition it is carried out off-farm. *Jornaleros* receive either money or reciprocity labour from other households’ farms, that can be within San Francisco Oxtotilpan, or in the nearby villages. The income generated from *jornales* comes, therefore, from activities that not necessarily are related with the land-based resources available for each household, or for the whole community.

household members to migrate to labour in tasks such as factories, construction pits and other often-informal jobs. These earnings are not considered remittances because the migration process is not permanent, and is carried out by members based in the household.

According to data obtained from *Dataset 2* the average year income in San Francisco Oxtotilpan for the period of study was 51,633 Mexican Pesos. Hence, the importance of *jornales* and seasonal wages on income generation is high since they represent 48.8% of the total average income from all sources. Other non-agricultural income sources have a smaller repercussion; government cash transfers –*apoyos* represent only 8.3% of the average household income. This figures contrasts with the conclusions drawn in the context of Mexico, in which government transfers and welfare programmes are highly important in terms of off-farm income (de Janvry and Sadoulet 2001; Finan *et al.* 2005). A similar situation occurs with the household members receiving salaries from the government sector (6.3%) and regular wages (2.1%). The salary from participating at specific government tasks (such as holding official authority positions –*delegados*, librarians, or forest fire brigades) is obtained for the term in which the position is occupied; different households' members would take these jobs when available.

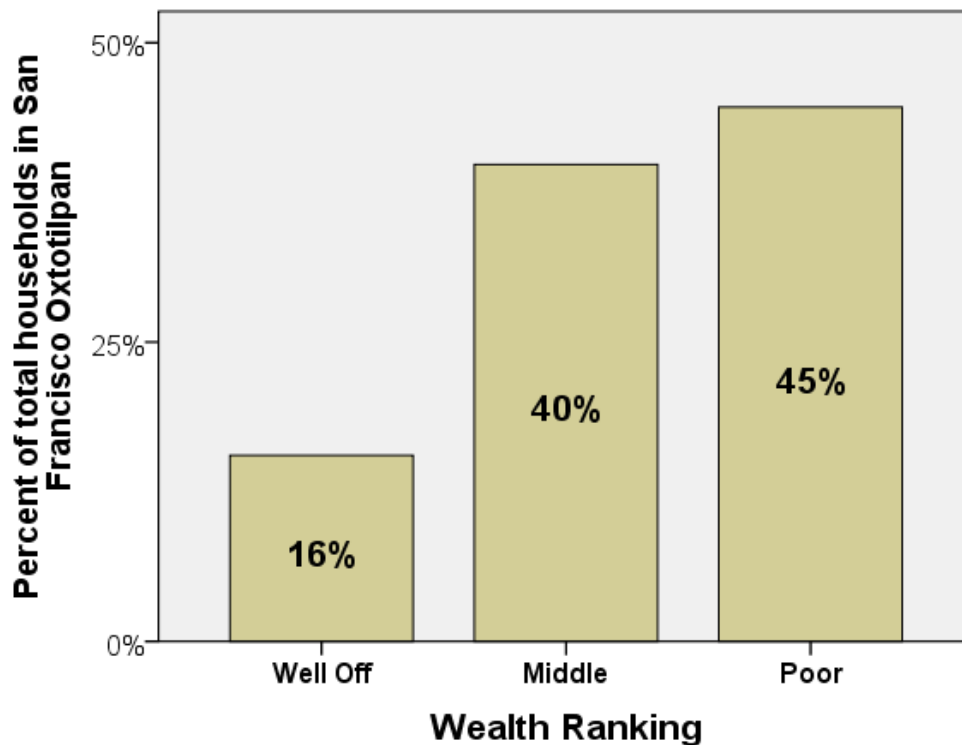
7.2.1.1. The role of Wealth for controlling Financial Capital

The financial capital generated by these off-farm activities provides households with the means to benefit from resources. For instance, those households that participate in government tasks, apart from receiving income as a result from their job, they can also be considered in a comparative wealthier position. As it has been analysed, wealth is part of the benefits provided by accessing land-based resources; however, as it is argued in this chapter, wealth can also allow households to access resources.

Research on households' access to natural resources, especially at national levels, typically focuses on income, expenditures and/or physical assets rather than on wealth. However, when it comes to financial capital, these variables frame individual's wealth (Barham *et al.* 1999; Takasaki *et al.* 2000; Reardon *et al.* 2001). As stated in the analytical chapter, the set of assets and possessions, as well

as income sources that constitute wealth, locate different households on different wealth categories (Madsen and Adriansen 2004; Taylor 2005). The distribution of wealth among *Matlatzincas* is shown in Figure 7.4. It is the result of the wealth ranking applied to the whole number of households in San Francisco Oxtotilpan⁶⁵.

Figure 7.4. Distribution of households' wealth in San Francisco Oxtotilpan



Source: *Dataset 1*
Total households in San Francisco Oxtotilpan: 354.

During the wealth ranking exercise, it was easier for the participants to include household within the group of 'well off' (16%). In consequent visits, some of the households considered to be in this group, were also standing in positions of authority. The richest households not only shared the characteristics included in Table 3.3, but also are members of the community that held or are currently holding authority positions within the local politico-legal institutions, or those

⁶⁵ Some issues such as health, education and food security were left aside the wealth ranking since these issues were reporting as relatively homogeneous across the different *Matlatzinca* households. While the focus of this research is the benefits obtained from natural resource access, these issues need to be explored in detail in further research.

with both *Ejidatario* and *Comunero* membership. Households with a higher degree of livelihoods diversification seem to be more prone to be included in the ‘middle’ or ‘well off’ groups. The group of ‘poor’ households is the largest in the community (45%). The poorest group’s characteristics show that without possession of basic assets such as agricultural land and tools, or transportation for goods and products, households can easier be located on the lower wealth ranking. As concluded in Chapter 5, belonging to an agrarian council is perceived as very important since it provides not only the benefits produced from common sources of revenue, but also a position of identity or authority that can contribute to benefit from land-based resources in different ways. Furthermore, accessing such position of authority allows an individual to change his/her household from one wealth category to another. Accordingly, one of the participants of the participatory wealth ranking (GD-2) affirmed:

“[...] when I [got recognized as *Ejidatario*] I had to start participating in *faenas*, but it was easy for me to borrow a *Yunta* or to get irrigation. The money I get from *Ejidatarios* is very little, but I can say I was poor in the past and now I am in the group of the middle. I do not have more money, but I am better off”

This statement demonstrates the influence of identity over controlling the distribution of financial capital, labour and technology across San Francisco Oxtotilpan. However, the comment also reflects not only the importance of the agrarian status of each wealth group, but the concept of wealth itself, in which “being better off” implies the access to means of production that were restricted for the respondent before, but since one of the components of wealth (agrarian status for this case) was modified, it was possible for him to change wealth group. One of the productive activities that provide further evidence of how wealth itself constitutes a means by which households obtain benefits is stockbreeding. Table 7.2 illustrates the extent in which differently wealth-ranked households include livestock management as part of their productive activities portfolio.

Table 7.2. Distribution of stockbreeding according to wealth

			Poor		Middle		Well Off	
			Freq	%	Freq	%	Freq	%
Livestock	Cattle	Self consumption	3	8	13	35	9	47
		Selling	0	0	3	8	2	11
		No have	34	92	21	57	8	42
		Total	37	100	37	100	19	100
	Sheep	Self consumption	9	24	3	8	2	11
		Selling	6	16	6	16	4	21
		No have	22	60	28	76	13	68
		Total	37	100	37	100	19	100
	Horses	Self Use	10	27	21	57	14	74
		Selling	0	0	0	0	0	0
		No have	27	73	16	43	5	26
		Total	37	100	37	100	19	100

Source: Datasource 2

In terms of livestock-related activities, table 6.6 shows that the majority of ‘poor’ households (91%) do not have cattle and horses. The difficulty on maintaining livestock, above all taking into account their mentioned lack of arable land, makes ‘poor’ households disadvantaged on adopting livestock as a main productive activity. In 2007 the federal government introduced a programme directed to poor households for buying subsidized sheep. The programme included training on sheep keeping and the provision for livestock inputs such as vaccinations and fencing materials; however, the participants should invest a percentage of the sheep cost (money that was difficult to get especially for the poorest households) and maintaining them represented a higher cost for landless households. Non-poor households soon captured the programme. This situation is expressed by one of the participants of a focus group organized with *Avecindados* and *Posesionarios* (FG-4):

“Some of the *apoyos* from the government are important, but are distributed badly. There are people of the community that are friends or even family of politicians and they receive the benefits. There are lots of wealthy families receiving *apoyos* and some others that really need them often have to beg for them!”

As shown in Table 7.2, ‘middle’ and ‘well off’ households use sheep more for selling than for self-consumption, rather than the ‘poor’ households in which sheep are mainly for their own consumption (24%). This example illustrates that policies directed to modify or re-direct the benefits obtained from land-based resources, require necessarily taking into account the access networks that are put in place on the structure of rural communities especially when aiming to reach the

poorest households. It is also relevant to highlight that while horses and cattle are types of livestock well off households occupy the most; the majority of poorer households have neither cattle nor horses but some sheep (16% for selling and 24% for self-consumption). While sheep breeding represents for poorer households a possibility of obtaining income even with limited access to agricultural land, for well off and middle-wealth households' cattle and especially horses are valuable as by its manure production, and their contribution to agricultural activities as drought animal power, respectively. In other words, while for households considered well off stockbreeding is mainly a complementary activity, for poorer households selling sheep is regarded as a direct income source.

This situation means that well off households can obtain more benefits from land-based resources through the products and inputs produced by livestock breeding. However, the benefit that most poor households obtain from sheep breeding is income. One of the benefits of land-based resources that poorest, but especially landless households obtain is the possibility to avoid purchasing fodder by grazing their livestock on common forest and grazing land. This situation illustrates that access to land-based resources can be mediated by the close connection between control over wealth and livestock activities.

The last section shows the close connection between wealth and other productive activities such as livestock and agriculture. It illustrates that differential control over wealth shapes the distribution of access locally. It also discusses the link between other productive resources to the use of land-based resources. This section also illustrates that wealth is intertwined with access mechanisms. Hence, making use of rights based, and structural and relational mechanisms to derive benefits from landed resources allow households to reach different wealth categories; however, wealth also affects the distribution of access. The following sections develop this point further by illustrating how differential control over other productive resources affects access.

7.2.2 Control over Labour

For the case of San Francisco Oxtotilpan, control over labour can be analysed in two different aspects. Labour can be controlled within the household and across

different groups of households. The former implies the internal structure of the households themselves, and the extent in which the household determines the type and temporality of labour to be carried out by each of its members (for instance the interchange of labour through *jornales*). The latter involves other politico-legal institutions (in this case the agrarian councils –*Ejidatarios* and *Comuneros*) controlling how households should labour for the benefit of the agrarian community. While sex and age are conditioning factors that enable individual households to decide the roles to be taken by its members when it comes to labour distribution, institutions at the agrarian community level condition and control the distribution of labour across different households. Table 7.3 includes the age and sex of household heads in San Francisco Oxtotilpan illustrating the first case.

Table 7.3. Age and sex of households' heads cross tabulation

Age Groups		Sex of the Household head			
		Man	Woman	Total	
Age of Households Heads	19 or younger	Count	2	1	3
		% of Total	.6%	.3%	.8%
	20-39	Count	39	24	63
		% of Total	11%	7%	18%
	40-59	Count	80	49	129
		% of Total	23%	14%	36%
	60-79	Count	70	47	117
		% of Total	20%	13%	33%
	80 or more	Count	20	22	42
		% of Total	6%	6%	12%
	Total	Count	211	143	354
		% of Total	60%	40%	100%

a. Source: *Dataset 1*

The group of age that concentrates the largest number of households' heads is from 40-59, which is the age in which most of the households get emancipated from the core family to create a new household. It is relevant that men within this group represent the largest population group as heads of households. This is also a reflection of the need for men under this age to settle down in the community to take care of the land that is allocated to them as heritage, donation or simply because of taking it over from their aging parents. What is relevant as well is that the main labour force is concentrated in the villagers among 40 and 59 years of age.

The proportion men-women in San Francisco Oxtotilpan is also interesting. Studies about gender and poverty of rural communities in Mexico show that the general trend, above all in indigenous groups with high migration patterns, is that household leadership tends to be taken by woman (Preibisch *et al.* 2002; Fonseca Hernandez and Quintero Soto 2004; Ochoa Avalos 2007). The case of the *Matlatzinca* does not follow this pattern. As shown in Table 5-1, the majority of household heads (60%) are men, even though women from 40 to 79 years old concentrate altogether the 27% from the total household heads. However, the data concentrated in Table 7.3 explores neither the possibility of woman holding property rights nor the presence of a migrating husband at the time of the survey. These issues will be explored more in-depth later in the chapter.

The idea about the ‘feminization’ of rural household leadership in Mexico often comes with the idea that the creation of a new family unit represents an issue that makes possible to landless men and women to migrate (Ochoa Avalos 2007). In other words, the younger members of the household who get married migrate to provide the means of subsistence for the new household co-residents. The low figure of household heads under 19 years old (0.8%) is contrary to the national trend of underage households’ heads (*Ibid.*). Given that in San Francisco Oxtotilpan young people lack productive assets and the means to emancipate from their current household (especially agricultural land), when young couples decide to form a family, they have to remain in the household. The newly created family has to be constrained to the needs and labour requirements of the whole household, even though they have formed a family by themselves.

Household heads, therefore, can control the labour of members of his/her household even when the household is composed of several families. Access to agricultural land is vital for the new family units to consolidate themselves as a separate household, or to keep participating in the household’s ‘working together’. As a consequence, often the household head has under his/her disposition the labour provided by sons or daughters and other co residents in order to meet the household needs. Having possession of a land plot certificate also implies recognition among the rest of the community as head of the household. Young household members can take over the control of labour within a household at the

expense of aging, ill or widowed parents, as well as for emancipation from the core household (when the land availability allows such division); the new household often takes over productive assets and when legally allowed by the current land tenure law, also official property rights.

As mentioned in Chapter 5, with the recognition of official property rights, household heads also gain a set of duties that both official and consuetudinary politico-legal institutions are entitled to enforce. This implies that politico-legal institutions have the means to control labour that in turn will allow them to access land-based resources. Although the benefits obtained by the way in which these politico-legal institutions not necessarily are directed to themselves, controlling labour often derive collective benefits on behalf the whole agrarian community. For instance, (leaving aside the migration processes that will be explained later on in this chapter), the head of household receives more pressure from politico-legal institutions to stay at the community to take care of land issues. As one of the villagers mentioned during an interview (I-11):

“... I as a [household head] need to take care of my fathers’ land. I lived in Toluca for 13 years, and I was coming to San Francisco only for the [village celebration] and the day of the death. I worked there and I was fine, but when my father started to be ill, I had to come back to take care of his land. I had to do it because my parents were not able to cooperate neither for the church nor for the *Ejidatarios* and they would lose all their right to [irrigation water] and to participate in the village parties. There has to be always a [household head] in the community to participate in *faenas* and to work the land. My father is too old for that now, so I have to leave my job in Toluca and come here to take over the land”

As discussed in Chapter 5, local politico-legal institutions such as the *Ejido* and *Tierras Comunales* councils are allowed by social convention to control the distribution of labour of their constituents. The allocation of *faenas* as means to fulfil the requirements attached to these property rights, constitute a means by which the local institutions can distribute the labour that each household is entitled to carry out for the common benefit. This situation has deep implications on the distribution of labour within the household. For instance, in the case of the villager previously quoted, the household member that latter became its head had to quit his job to return to the community and work the land. The labour that

represented the *faenas* imposed over the household represent a procedure to maintain access to local land-based resources. The evidence shown in this section illustrates that labour is closely tangled with the different categories of access mechanisms. Hence, controlling labour allow households to maximize their benefits from land-based resource by creating networks of cooperation. These networks of cooperation constitute the very means by which households interact around productive activities related to landed resources. However, together with labour and financial capital, control over technology plays a central role shaping the local distribution of access.

7.2.3 Control over Technology

According to Ribot and Peluso (2003:165) “technology mediates access in a number of ways [...] many resources cannot be extracted without the use of tools or technology; more advanced technology benefits those who have access to them” as shown in the last section, technology plays an important role in shaping the ability of some households to maximize their benefits from land-based resources (Bunker 1985). For the case of the Matlatzincas, there are two types of technology that illustrate its role in shaping access to land-based resources: technology in the form of machinery and transport and infrastructure for irrigation and drinking water.

Controlling and maintaining access to landed resources can be closely related with technologies that increase or facilitate the ability to physically reach a resource; hence, in San Francisco Oxtotilpan, who has a chainsaw, or a plough can easily reach fuel wood, or work agricultural land respectively. The examples provided by mining and water supply illustrates the complex junction in between the technologies themselves and their associated institutions and relations; or modes of extraction as stated by Bunker (1985).

After a series of official inspections in 2006, *Comuneros* as proprietors of the mine were suggested to extend the size of the mine to increase its production. There where some requirements to be covered: an environmental and social impact assessment, make ensure that the land in which the extension of the mine was common property, and fulfil the legal requirements. Finally, in 2007 the mine

extension was accepted; however, *Comuneros* were not able to start the mining activities due to lacking a bulldozer for the extraction of the material and a truck to transport it to the selling point at the entrance of the mine.

Even though the official legal procedures were followed, permissions granted and resource available, lacking a specific technology restricted their resource access. A set of measures had to be taken, including saving money from the mine profit and reducing the distribution among *Comuneros* of such profit. In 2008 *Comuneros* were able to buy a second-hand bulldozer and another truck to start the exploitation of the mine extension. This example shows that under common needs, groups of people can organize themselves to get the technology that will facilitate gaining, controlling and maintaining access to resources.

The example of the mine shows how groups within the agrarian community need to control technology in order to gain and maintain access to land-based resources in the long term; however, individual households also need technology to access resources. Irrigation channels and piping from springs and wells require maintenance and labour from individual households. The irrigation and drinking water infrastructure is already in place. Subsidies from official institutions together with the labour of the community have made possible for the majority of households in the village to get access to drinking water; channels are distributed across the valleys to provide irrigation to the agricultural lands located nearby.

San Francisco Oxtotilpan is divided into seven colonies, each one with their 'water committee'. These committees are in charge of the vigilance and distribution of water in their respective colonies. During the dry season, households are required to participate in *faenas* to repair and maintain the irrigation and drinking water infrastructure. The committee president has a list of households with their respective participation in *faenas* and their water requirements. Participating in *faenas* is a requirement for accessing irrigation channels; and when exceeding the limit granted, or when while irrigating nearby plots get damaged, producers are sanctioned by participating in more *faenas* or by repairing the damage caused.

The way in which irrigation water is managed illustrates a relatively opposite situation to the presented in the mine. Individuals and groups have already the technology needed to access water; however, the social structure of the community implements practices of control over technology that in turn will affect households' ability to obtain benefits from resources. In other words, those who control technology can shape the distribution of benefits from resources. The example also provides evidence for how control over productive resources (in this case technology) and access mechanisms (in this case identity) together influence access to land-based resources. In order to extend this discussion, it is necessary to assess the role of technology (in the form of irrigation) and its influence in agricultural production. Table 7.4 illustrates the agricultural production in San Francisco Oxtotilpan.

Table 7.4. Area cultivated by crop^{ab}

		Irrigated Land	Rain-fed Land
MAIZE	Plots	20	40
	Average size (Has)	1.2	1.2
	Sum (Has)	24.8	46.3
	%	42	45
MAIZE +	Plots	14	14
	Average size (Has)	1.4	2.2
	Sum (Has)	19.7	30.8
	%	33	30
OATS	Plots	5	3
	Average size (Has)	1.3	.8
	Sum (Has)	6.5	2.4
	%	11	2
BEANS	Plots	5	
	Average size (Has)	.8	
	Sum (Has)	4.1	
	%	7	0
BROAD BEANS / POTATO	Plots	4	
	Average size (Has)	1.1	
	Sum (Has)	4.3	
	%	7	0
FODDER	Plots		15
	Average size (Has)		1.6
	Sum (Has)		23.7
	%	0	23
TOTAL	Plots	48	72
	Sum (Has)	59.4	103.2
	%	100	100

a. Source: *Dataset 2*

b. The agricultural cycle analysed is September 2008-July 2009.

Table 7.4 illustrates that technology plays a central role in differentiating other productive resources. From the figures of agricultural production it is possible to infer that irrigation differentiates land quality; therefore, a wide array of agricultural products are harvested accordingly. From the sample taken 75% of irrigated land and 75% of rain-fed land were used for producing maize (and a combination of maize plus other crops such as pumpkin and flowers). It is relevant that the production of beans, broad beans and potato requires irrigation. These products are easier to commercialize in the regional markets, while maize

and oats are mainly produced for self-consumption and livestock. The figures on fodder production indicate that only rain-fed plots were used to produce grass and other livestock hay. Fodder is mainly seasonal grass that needs less labour than other crops harvested in irrigated plots. The case of fodder shows the heavy reliance of land of livestock breeding on grazing land that in turn impacts the distribution of financial capital. Since most poor households rely on grazing land to feed their herd, it is not necessary to spend extra money on buying fodder.

The case of *Matlatzincas* is does not differ from the national trend in terms of agricultural production. Mexico holds the fifth place in maize production with 3.1% of the world's maize production behind United States (42.5%), China (18.1%), European Union (7.5%) and Brazil (5.6%)⁶⁶ (Boege Schmidt 2008). Paradoxically, Mexico also imports one fourth of its consumption, mainly yellow maize for livestock and industry; while in the United States has started to produce Mexican indigenous varieties for flour and Mexican food (Barkin 2003; Boege Schmidt 2008). For indigenous groups in Mexico, the production of Mexico has been considered as “bimodal” –the minority of producers are big industrialized agricultural entrepreneurs, while the majority are smallholders that produce for self-consumption and local markets (Barkin 2003).

The agricultural production on irrigated land is devoted to the production of maize and more commercial crops such as beans and potatoes, and the leftovers of these crops (leafs, plants and dry maize plants) are used as fodder for livestock. Regarding these more commercial crops one of the villagers commented (I-12):

“I produce potatoes and beans for selling in the market in Toluca. I need to make sure I send my son to my *faenas* so I will not have any problem with the water I need for irrigate my crops. Since I do not have a truck, once the crops are ready to be harvested, I need to agree with my neighbours the price [to transport] my potatoes and beans to Toluca [...] usually my brother-in-law charges me less money for using his truck, but when he can not do it, I will need to pay more to use [other villagers?] trucks”

There are two main conclusions to derive from last quote, first, that in order to obtain benefits from land-based resources, villagers need to control two strands of

⁶⁶ Data from the production cycle 2004-2005.

technology; in this case, technology in the form of irrigation infrastructure and transportation. Controlling technology produces in the long-term benefits that are not necessarily related to land-based resources –the case of the truck owners. Second, in order to maintain access to resources by controlling technology, villagers still have to put in practice a series of structural and relational mechanisms, as discussed in last chapter. Hence, controlling technology has to be combined with interpersonal relations and access to markets –among others, if villagers aim at gaining, controlling or maintaining access to land-based resources in the long-term. This combination of access mechanisms with control over other productive resources is what ultimately shapes the distribution of benefits from resources at the agrarian community level. This is the subject of the following subsection.

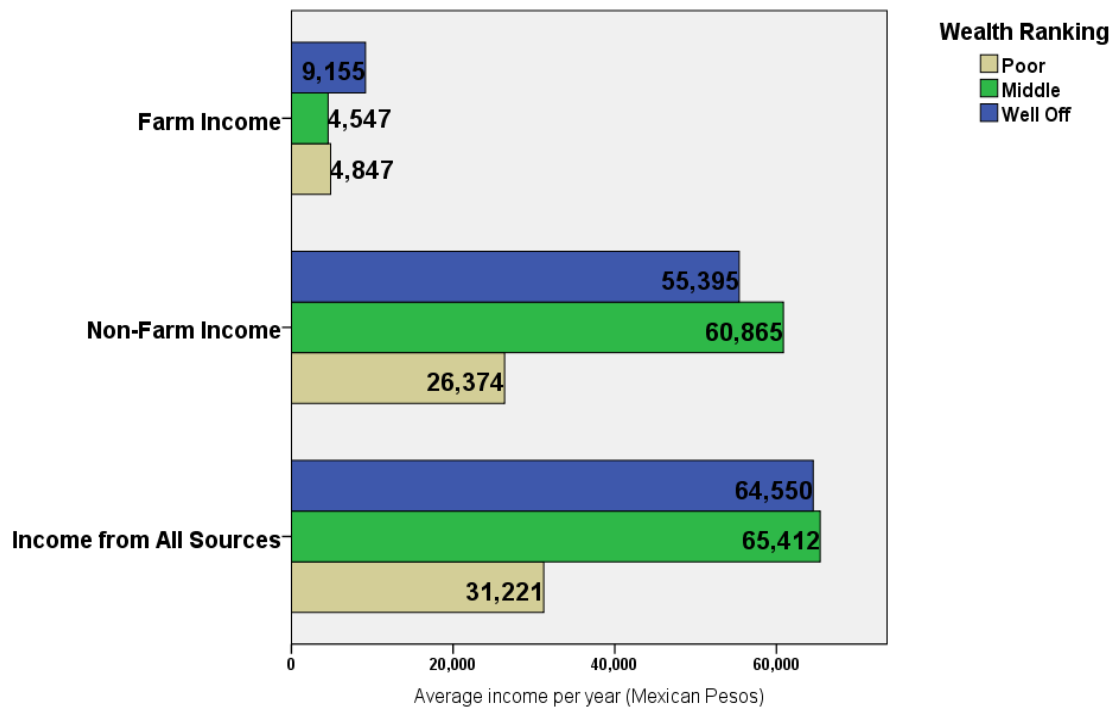
7.3 Control over other productive resources as means to access land-based resources

Control over financial capital, labour and technology allow households to shape the distribution of benefits from resources. This section demonstrates that individuals or groups within the agrarian community can distribute access to resources by allowing or restricting other actors from obtaining benefits by controlling other productive resources. Differential control over financial capital, labour and technology, therefore influence access by allowing or constraining households and individuals from deriving benefits from land-based resources. The previous sections of this chapter review how these other productive resources are distributed across the agrarian community. Hence, the aim of this section is to illustrate how productive activities related with financial capital, labour and technology shape access to land-based resources.

As mentioned elsewhere, income is an indicator of the benefits derived from households' wide portfolio of productive activities. Given the rural context of San Francisco Oxtotilpan, it could be possible to argue that activities related to land-based resources –such as agriculture or forestry would be the basis for local households' livelihoods, and by extension, their main source of income. However, the distribution of income by source tells a story that provides insightful evidence as to how households combine different access mechanisms with other productive

resources. The following figure shows the distribution of income sources according to the wealth ranking in San Francisco Oxtotilpan.

Figure 7.5. Distribution of income sources by wealth ranking



Source: *Datasource 2*

Data expressed in Mexican pesos per year

Sample: n=93 (26.3% of total households)

The first conclusion that Figure 7.5 provides is the low contribution of income from farming activities to the total income of San Francisco Oxtotilpan. From preliminary observations at the beginning of the fieldwork, it could be possible to conclude that agricultural and forest land concentrate the most important productive activities –in terms of income generation. However, when looking at these figures it is possible to conclude that in general, non-farm income sources –remittances and other non-farm activities (see figure 7.3), generate more income than farm-based activities –agriculture, stockbreeding and land transactions.

Wealth is an important factor to consider when assessing the role of non-farm activities in the generation of households' income. Hence, the 'middle' group reports to have the largest income generation per year for total non-farm income, while the 'well off' household group has more income due to farming activities than the other groups. Income generated from farming activities represents the smallest source of income for all the wealth groups; however, farming activities

provide more income for ‘well off’ and ‘poor’ households than for ‘middle’ households proportionally. The relevance of these figures relies on the differentiation of income in the construction of wealth. Being considered ‘well off’ does not necessarily imply having the highest income generation. Hence, ‘middle’ wealth households generate more income than the other groups; yet, when it comes to farm income; ‘well off’ households might put in place their relational mechanisms of access to generate more income. For instance, since ‘well off’ households can access better agricultural land, irrigation and other technologies such as transport and commercial agreements, they can exert more benefits from farming activities than the other wealth groups. Consequently, this information illustrates that income itself is subordinated to wealth, which in turn is the result of the intricate network of access mechanisms put in place to benefit from resources.

As it has been discussed elsewhere in this thesis, members of the agrarian community consider agriculture their main activity. The figures shown in Figure 7.5, however, indicate that forest and agricultural land are rather valued according to the non-material benefits households derive from them. The productive activities carried out outside the land-based resources available in San Francisco Oxtotilpan allow its members to keep their lifestyle as *campesinos*; a way of life in close relation to the land-based resources available that overcomes the low profitability of land-based activities. Hence, the importance of non-farm income sources stems from its possibility to provide the means by which households can access land-based resources; means that land-based activities –in the form of subsistence agriculture, or restricted forestry cannot provide. The prime example is the case of migration.

7.3.1 Leaving the Land to Benefit from it: The case of Migration

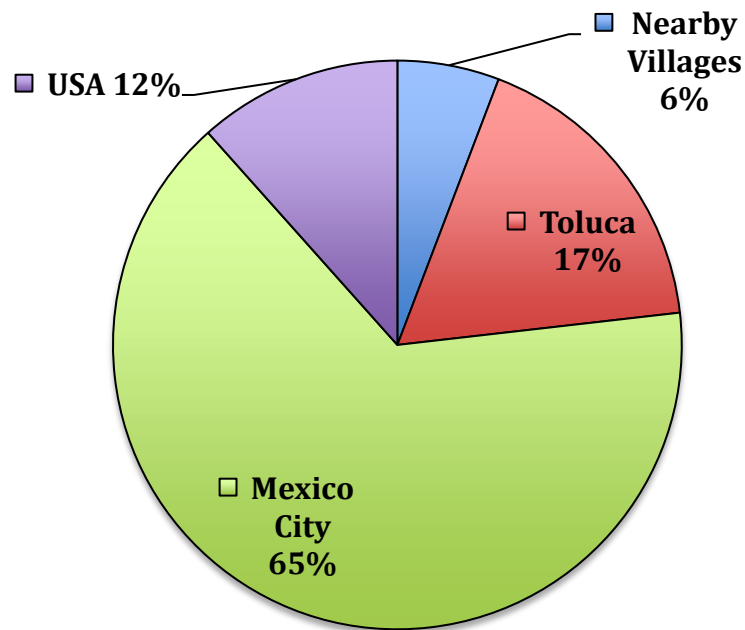
The main aim of this section is to relate the processes of migration that San Francisco Oxtotilpan has to the different ways in which community members control other productive resources. In other words, the extent to which migration affects control over labour, wealth and control over other financial assets and technology. The evidence provided by the case of San Francisco Oxtotilpan shows that migration can either allow or restrict specific households from

controlling other productive resources. To start with this analysis, it is necessary to highlight the role of the early 1990s land reform in the migration patterns of agrarian communities in Mexico.

The labour conditions in rural Mexico before the land reform, constrained household heads to remain in their plots producing agricultural goods. Producers were forced to stay in their communities or lose their land rights. Although recent studies of rural migration in Mexico focus mainly in the effects remittances have on rural households, the actual motivations for migrating on indigenous' rural contexts has received little attention (McKenzie and Rapoport 2007; Woodruff and Zenteno 2007; García-Barrios *et al.* 2009). Regarding the motivations underpinning the decision of *Matlatzincas* to migrate, one of the key informants mentioned (I-8):

“[...] we all want to go out of San Francisco and try out our luck outside [...]. Almost all the men have gone out above all when they are young. Before the majority came back, now it is more difficult because there is no more land to spare. Together with this problem, the price of most of the products we produce is very low; we have to go and find other jobs if we want to buy seeds, tools or even food! We cannot survive with our plots alone. [...] before, leaving San Francisco was one's choice, now, people has to work outside to help their families to survive”

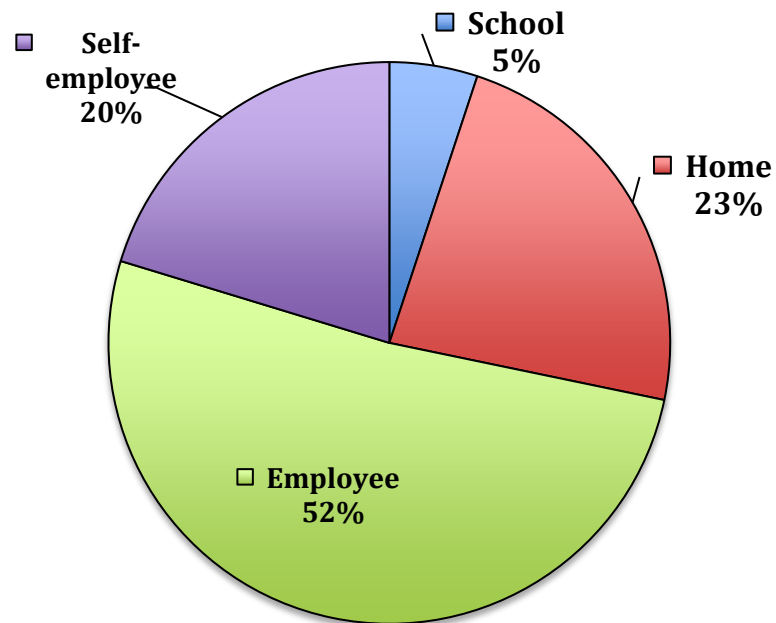
Migration constitutes itself as a mechanism put in place by some household members when needing labour opportunities or simply for looking the experience of working out of the community. The survey implemented in San Francisco Oxtotilpan shows that 58.1% of the sampled households have at least one member mostly or permanently away. However, migration does not have implications for labour availability alone, it also impacts on the other productive resources – financial capital and technology for land-related activities. The following figures illustrate further these implications. Figure 7.6 shows the main destinations of migrating household members:

Figure 7.6. Destination of migrating household members

Source: *Datasource 2*
 Sample: n=93 (26.3% of total households)

The information obtained from the survey shows that rural-urban migration is the largest migration pattern in San Francisco Oxtotilpan. Migrating to Toluca (17%) –the capital of the state; or to Mexico City (65%) might respond to the more diversified labour opportunities provided by these capital cities. Also, due to the relative short distance, migrating to these cities allow villagers to keep in contact with their families, as well as facilitating the provision of remittances. Although the majority of these villagers have a pendular migration; for instance, working from Monday to Friday in Toluca or Mexico City and returning to the community on weekends, some of them migrate seasonally when the agricultural cycle does not require them to be based in the community. Technology and financial capital have an important role when determining the type of migration. If the labour carried out outside the community provides enough financial assets to return to the community, villagers will do so more often than those obtaining less income. Technology in the form of telecommunications also influence the periods by which the household members is away, and also the provision of remittances, especially in cases of international migration.

Transport represents a type of technology that allow household members to migrate closeby. Migrating to nearby villages (6%) may result in labourers working in the agricultural sector, rather than obtaining the experience of working in off-farm jobs. There are testimonies in the village that show many cases in which youth *Matlatzinca* immigrants, were encouraged to find non-agricultural jobs, both for the motivation of developing new skills, and also due to the lack of arable land that many households face. The example of youth household members aggravates the problem of land abandonment since many types of activities require them to reside permanently in their destinations. This situation creates a problem of labour availability when it comes to the busiest periods of the agricultural calendar (such as yielding or planting) –see figure 6.6. This is an example of the way in which migration affects the distribution of labour around agricultural activities. To extend this discussion, the distribution of activities carried out by the migrating members of the households surveyed is shown in figure 7.7.

Figure 7.7. Distribution of activities of migrating *Matlatzincas*

Source: *Datasource 2*
 Sample: n=93 (26.3% of total households)

Figure 7.7 complements the idea expressed by the respondent quoted before; exercising productive activities such as looking for labour opportunities by migrating, responds not only to the need for maximize the extraction of benefits, but also to personal motivations that sometimes overtake the need for improving household wealth. Correspondingly, 52% of respondents stated to be working as employees, mainly in the private sector on small and medium enterprises where unskilled workers are requested. 20% are self-employed mainly in small businesses and 23% are mainly women dedicated to their own homes. It is remarkable that no professional activities were reported, and that only 5% of migrants are attending high schools and/or higher education.

The way in which finding labour opportunities by migrating modifies the community's and households' ability to obtain benefits is related to the influence that migrating villagers are bringing to San Francisco from outside. New ideas on production, improving or development of specific skills and especially new attitudes towards the local livelihoods in general and natural resource access in particular, can modify the whole community structure to the point in which structural aspects are changed as well. After all, labour opportunities and

migration patterns show that structural mechanisms of access work as intricate networks where individuals, households and groups shape the whole community's structure. Hence, the migrating member acquires a different set of skills and organization patterns that when applied at the agrarian community, can produce different outcomes. As mentioned by a key informant (I-13):

“[Migration] It is a good thing. Although we have many young people leaving the village, sometimes those that come back have learnt jobs or simply bring fresh ideas. Entire families have left the village and most of them are better off than staying. Besides, people that leave often send money back to us. In my case, if it was not for the money my sons are sending, I would have never been able to buy my tractor, or my truck. Many people do not have anybody out of San Francisco and they need to find jobs here or in [the neighbour communities]”

Migration patterns in San Francisco Oxtotilpan are processes that evidently shape and influence obtaining benefits from resources. Migration, therefore, provides economic resources in the form of remittances, and non-material resources such as knowledge, experience and skills. These resources are put in place by households to benefit from the resources available locally; this is achieved by adapting their productive activities with the new techniques and skills, or simply by using the economic resources to buy inputs that in turn modify local land-based activities – as referred in the section of technology. Hence, the migration patterns observed in San Francisco Oxtotilpan illustrate that labour and technology play a central role on the conditions in which migrant household members can work outside the community, and provide the means to modify their land-based activities respectively.

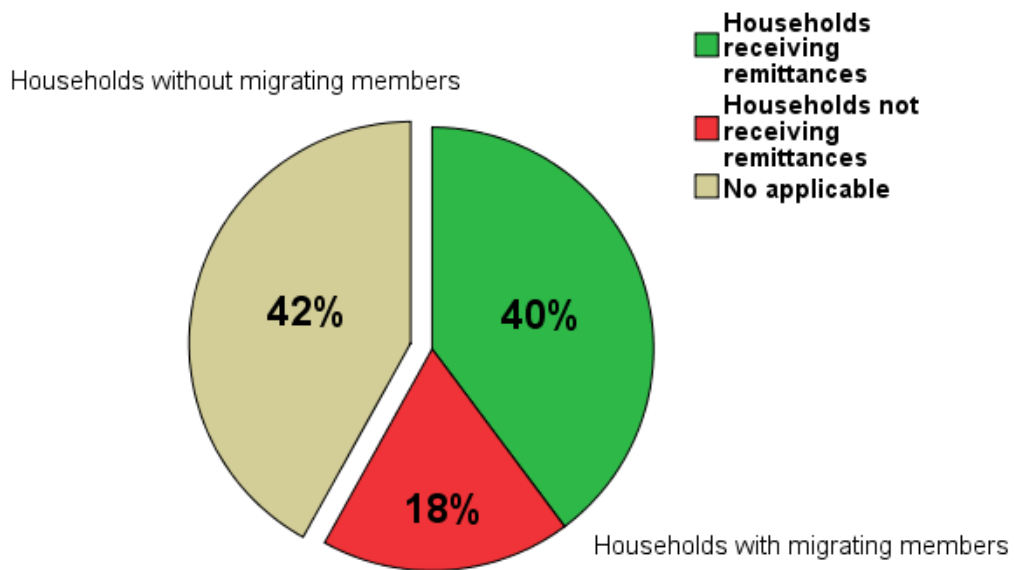
Albeit the survey questionnaire applied in the *Matlatzinca* group aimed at obtaining information about the income generated from remittances by household, the figures demonstrated being not reliable due to, on one hand, the variability and periodicity of remittances; and on the other, the lack of willingness of households surveyed to provide reliable data about the amount sent by household members permanent or mostly away⁶⁷. Nonetheless, a figure that can provide an idea about

⁶⁷ It is necessary to bear in mind that with the exception of remittances, all the figures on income were generated by indirect means. The analyses expressed in income generation are therefore based on net incomes –gross income minus variable costs. Obtaining reliable information about

the patterns of permanent migration of *Matlatzincas* is the amount received from pensions. Being a pensioned household member not only indicates that his/her type of migration was permanent, but also that he/she was employed in the formal sector –private or government; a pattern that seems to be every time more difficult to find among *Matlatzincas*. As shown in Figure 7.3 –in this chapter, pensions represent only 0.9% of the average community’s income, which is congruent with the general situation of pensions in the Mexican rural sector in which it is increasingly more difficult for rural immigrants to obtain jobs in the formal sector that could, in the long term, provide pensions to the elder rural producers (Jones 1998; McKenzie and Rapoport 2007; Woodruff and Zenteno 2007).

Even though it is difficult to track the amount of remittances received and the destination of them –in terms of how the households spend them, it is interesting to highlight that not all households in San Francisco Oxtotilpan rely on migration to subsist. Figure 7.8 illustrates the extent in which *Matlatzinca* households receive remittances from members permanently or mostly away.

remittances implied relying on the direct figures expressed by household heads at the moment of the questionnaire application. For a deeper explanation of the survey questionnaire design, refer to Chapter 3, on methodology.

Figure 7.8. Remittances received at the community level

Source: *Datasource 2*

Sample: n=93 (26.3% of total households)

As mentioned in this subsection, migration is an activity that involves the labour opportunities that household members use to obtain economic benefits outside the community, income that when sent back to the agrarian community can provide the means by which households can access land-based resources locally. In the case of San Francisco Oxtotilpan, besides the economic benefits previously described, other productive resources such as technological assets can be obtained from households' migrating members. However, it is necessary to assess the proportion of households that receive remittances in order to achieve a better understanding of the importance of migration for the context of the *Matlatzinca* community. The insights provided by Figure 7.8 indicate that the majority of households (58%) have at least one member permanently or mostly away. In turn, 42% of households surveyed do not have migrant members. However, having migrant members does not ensure the reception of remittances. Out of the total households in San Francisco Oxtotilpan, only 40% of the total surveyed households receive remittances regularly, while 18% reported to have migrating members that do not provide remittances.

Contrary to what it could be thought, although the number of households with permanent migrating members is relatively high, remittances is not a source of

income in which the majority of households in the agrarian community can rely on. However, evidence from specific cases found indicates that some of the households that receive regular remittances (especially from international migrants and households whose heads are elder villagers) have improved their living conditions in terms of financial capital. An illustration of this is provided by the following quote from an interview (I-14) with a woman that being the head of her households relies heavily on the remittances sent by her son living in the United States:

“I have not seen my boy in 8 years. Since I am not strong enough to cultivate my land, I decided to sell most of it. The first years without him were really difficult because he was the one in charge of this house. He once called me and he told me to sell the land and rent a place to set up a little staple shop. From the money he sends I maintain the shop and have built this new house. He sends enough money for me to travel to Toluca whenever I need more products for the shop or to visit the doctor. I still have my *milpa*, but I do not earn anything from it [...] I do not know how people without anybody working outside San Francisco can survive!”

In similar cases, remittances can provide the resources needed to access, or improve their access, to specific resources (such as housing, acquisition of tools and means for transportation, etc.), to the extent in which households' farming activities might be subjugated to the income received from their members working away. However, as this quote refers, the lack of remittances implies a lack of a source of income that in turn is transformed into labour, technology and other financial assets. The lack of migration, in this sense, represents a restriction to the control households can exert over other productive activities.

The analysis of migration presented here aims to achieve a better understanding of the extent in which it can provide or restrict household from controlling other productive resources (labour, technology and financial capital) as means to obtain benefits from local land-based resources. Further research is required to assess whether or not the provision of remittances can generate income inequalities at the agrarian community level.

7.4 Conclusion

In congruence with the analytical framework designed for this research, the previous chapters deal with the two main access mechanisms –rights-based and structural and relational. In order to complete the empirical map of access to land-based resources, it was necessary to explore and explain the role of other productive resources that households enact as means to derive benefits from these resources. The findings discussed in this chapter provide insights about the distribution of financial capital, labour and technology in San Francisco Oxtotilpan, and the extent in which these other productive resources allow other access mechanisms to be used by households to access land-based resources.

One of the main contributions of this thesis is that even when focusing on a specific type of resources (in this case land-based), there are other productive resources that are central for households' livelihoods. Controlling these productive resources provides individuals and groups of households with the means to benefit from land-based resources, even when these resources are not necessarily, or directly related with land.

Given that the centre of empirical attention of this thesis is access to land-based resources, this chapter focuses on the different ways in which individuals or households within the agrarian community can exert control over financial capital, labour and technology. Hence, for heuristic purposes, the different ways in which households control other productive resources is considered exogenous to the analysis of access to land-based resources. In other words, control over financial capital, labour and technology shapes the distribution of benefits from land-based resources.

Financial capital, labour and technology play specific but correspondingly important roles on shaping access to land-based resources. For instance, controlling financial capital provide households with the means by which it is possible to diversify their portfolio of productive activities. Furthermore, control over financial capital is critical because it allows households' possession not only of agricultural land (through land transactions such as renting, buying or sharecropping) but also the provision of technology and labour.

Control over labour also constitutes a factor that allows livelihoods diversification; however, it also implies that household members can learn new transferable skills that can be applied across the agrarian community. Technology has demonstrated having deep effects on access to land-based resources. From transport and commercialization, to an increase in agricultural production, technology can maximize the benefits obtained from landed resources. However, control over these other productive resources also can restrict households from benefiting from land. When specific households, or groups control the distribution of these productive resources, they can direct or concentrate the flux of benefits, restricting other members from accessing land-based resources. This chapter illustrates, therefore, that control over other productive resources can increase access to land-based resources by improving and diversifying productive activities, or restrict access through the formation of local elites that concentrate productive activities and resources.

The case of migration was used to illustrate an activity that frames the distribution of other productive resources across San Francisco Oxtotilpan. Due to its lack of direct links with local land-based resources, migration is an important activity that complements the portfolio of income sources; shaping the distribution of financial capital, labour and technology; outlining, therefore, households' access to local land-based resources. One of the main insights provided by the analysis of migration as an exogenous but complementary activity to local livelihoods is that the non-material benefits obtained from land-based activities are essential for households to keep on carrying them out. As illustrated in Chapter 5 and 6, obtaining non-material benefits from land-based resources is essential for the villagers of San Francisco Oxtotilpan to keep their way-of-life and livelihoods. Hence, given the low profitability of land-based activities such as agriculture, or the concentration of economic benefits from forestry among a handful of households, migration is regarded as an activity that provides, among other benefits, the possibility to reach the required inputs to maintain households' land-based livelihoods.

CHAPTER 8. CONCLUSIONS

8.1. Introduction –about the conclusions

The package of policies and programmes that accompanied the early 1990s land reform in Mexico was regarded as the ultimate way of tackling the perceived low productivity of the agricultural sector as well as issues of poverty and marginalization of the rural sector. The modification of the 27th article of the National Constitution and the introduction of a new agrarian law originated a series of policies and programmes directed to regulate land-based activities to conform to the mainstream models of biodiversity and natural resources conservation, and economic development of that time. The socio-economic and political consequences of these legal changes have overshadowed the original objectives of these policies and programmes, changing the way in which agrarian communities in rural Mexico access land-based resources.

This research provides a comprehensive analysis of the extent to which the land reform-related policies and programmes have direct implications on the distribution of access to land-based resources in an agrarian community in Mexico's central highlands. Furthermore, this thesis provides conceptual and empirical insights that allow a better understanding of the different ways in which members of an agrarian community derive material and non-material benefits from land-based resources in the context of land reform in Mexico. In doing so, this research adopts a multi-methods approach that focuses on identifying how a series of access mechanisms enable different social actors to access land-based resources. This concluding chapter highlights the main contributions of this study to a wider body of research in terms of natural resource governance and development studies. The following sections look at the main empirical findings, the conceptual and theoretical implications of this study, the implications for land policies and the potential areas of future research that this thesis provides.

8.2. Main empirical findings

In order to obtain a better understanding of access to land-based resources in the context of land reform, this thesis is based on the empirical insights provided by the analysis of the way in which the *Matlatzinca* indigenous group obtain benefits from available land-based resources. The case study of San Francisco Oxtotilpan illustrated some of the most influential aspects of the implementation of land-reform policies that shaped the distribution of access to land-based resources across households of the agrarian community. Therefore, it was necessary to design three research questions that contour the wide array of factors and processes that frame access to land-based resources under the influence of land reform in Mexico. These issues are deeply rooted, not only in the way land-based resources are accessed by agrarian communities, but also in the political economy in which the rural sector in Mexico is involved. Hence, this section explains how the empirical findings address the research questions designed.

8.2.1 The Implementation of land Reform in Mexico

This subsection looks at the main findings related to the implementation of land reform in Mexico in the early 1990s. The findings are related to the first research question:

How has the Mexican State implemented land reform and land-based resources policies and what are the responses of agrarian communities in Mexico?

This research illustrates the general failure of the land reform to achieve the benefits it claimed. Answering this research question implied adding insights to relevant literature about the generalised failure of land reform in Latin America (Valdivieso Canal 2004, Saffon 2010). For the case study analysed, the programmes of land registration and titling that were extensively supported by the mainstream neo-liberal development agencies and academia during the 1980s and 90s, have not delivered the goals of overcoming poverty and increasing rural productivity. As shown in this thesis, this is partially due to financial institutions not accepting the title provided by the government as collateral for credits, and due to the official bureaucracy of the institutional structure originated from the land reform period.

The analysis of the empirical information obtained from the case of San Francisco Oxtotilpan shows that there have not been changes in terms of increasing agricultural production or reducing poverty in the community. The implementation of land-related policies and the analysis of their effects on the agrarian community chosen as a case study illustrate that these policies are disconnected from the particularities of natural resource management at the grassroots level. The current legislation on land-resource management targets rural Mexico as a homogenous space with no differences. Hence, in agrarian communities where land privatization was not achieved (such as in San Francisco Oxtotilpan), policies and programmes that resulted from the implementation of land reform have diverted from the provision of land titles and agrarian conflicts resolution, to the provision of hand outs such as conditional cash transfers and material endowments in the form of fertilizers or genetically modified seeds. The distribution of these hand outs has provided the State with the means to allow or restrain access to resources. The prime example of this is the distribution of new technology as the main tool for increasing *Ejido*'s agricultural production.

The case of San Francisco Oxtotilpan illustrates that agrarian communities are instructed to produce specific crops as a condition for receiving aid in the form of '*apoyos*'. The State controls agriculture by conditioning the distribution of technology as aid, while at the same time, constrains other land-based activities (such as the extraction of forest products) through the implementation of legal restrictions. Hence, agrarian communities are left with no option but to change their production patterns based on the use of inputs provided by the State and the legal restrictions imposed. This situation invariable changes the way members of the agrarian community traditionally obtained benefits from resources across generations. However, it also provides a political environment where agrarian communities are forced to bend the official law to keep deriving benefits from land-based resources.

Furthermore, the policies derived from the land reform tend to strengthen State control over productive activities related to land-based resources. The amendment of Article 27 of the National Constitution not only opens up the possibility to privatize land and consequently its resources, but also allows the State to regulate

land-resources activities by implementing conservation policies and laws. The evidence collected from San Francisco Oxtotilpan shows that official policies related to natural resource management can reach a degree of restriction that falls into the criminalization of practices that have been commonly carried out by the members of agrarian communities for generations (e.g. the case of firewood collection).

Controlling and regulating extractive practices such as forestry or mining, have involved the use of the federal police to enforce the new laws; however, these actions have also criminalized extractive activities that are central to agrarian communities' livelihoods; for instance, the collection of non-timber products and firewood. The restrictive character of these laws and policies constitute the main arena of conflict between State-based institutions and local governing bodies.

8.2.2. Land Reform and Access to land-based resources

This subsection looks at the most important effects of the land reform process in Mexico on the distribution of benefits from land-based resources available in San Francisco Oxtotilpan. It shows the main findings related to the second research question:

How and why has the introduction of land reform-related policies modified agrarian communities' ability to obtain benefits from land-based resources?

This research demonstrates that after almost 20 years of the introduction of the first land reform-related policies, the consequences of these reforms are still identifiable in the everyday activities of San Francisco Oxtotilpan. However, the land reform itself has not directly affected the situation of land-based resources (such as its distribution, conservation or use), but it has had deep implications on the organization of social actors involved in land-based resources access. The analysis shows that the most notable consequences of land reform-related policies meant a modification of the social structure of governance that allows the agrarian community to gain, maintain or control land-based resources.

Another important change brought by the introduction of land certificates via Procede was that officially, agricultural land passed from being a household resource, to individual ownership. The effects of this situation are discussed

below; however, it also represents a change in the relationships that the agrarian community had with State-based politico-legal institutions. In terms of problem resolution, individual land certificates implied strengthening the authority of local governing bodies to solve internal conflicts. Hence, the role of the State was reduced to tackle boundary conflicts with neighbour communities, rather than internal conflicts such as land concentration or unequal distribution of development aid.

The early 1990s Mexican land reform implied State-based institutions regarded land as an object to be possessed. This situation implied that while the State focused the resolution of agrarian conflicts through securing land tenure, local consuetudinary politico-legal institutions dealt with agrarian conflicts in more holistic ways. This case of legal pluralism has its origins in a vast history of land reforms in Mexico, where the continuing presence of a plural legal framework intermeshes with, on the one hand, the negative of the statutory law to take into consideration consuetudinary norms; and on the other, the lack of consultation when it comes to the design of policies and laws and the consequent lack of recognition of consuetudinary institutions that enforce customary laws at the agrarian community level. The implications of this problem are dealt with in the forthcoming sections.

8.2.3. Mechanisms of access to land-based resources

This subsection includes the main empirical findings regarding the different mechanisms put in place by San Francisco Oxtotilpan households' to benefit from land-based resources. These empirical findings frame the third research question:

How and why do different mechanisms of access shape the distribution of benefits from land-based resources?

One of the most important contributions of this thesis is that it provides a possibility to better understand how people obtain benefits from land-based resources through the implementation of a series of access mechanisms. However, the function of putting in place access mechanisms is not exclusive to deriving benefits alone. As mentioned elsewhere, access mechanisms also provide the means to restrain other users from deriving such benefits. In other words, access

mechanisms constitute the means different social actors use to gain, control and/or maintain the flux of benefits.

The dual function of access mechanisms, as means through which social actors obtain benefits from landed resources and as means to restrain others from deriving these benefits, is crucial for better understanding the effects of public policies on local communities. The analysis presented in this thesis is unique in this sense, since it demonstrates that land reform-related policies have had effects not only on the local governance and administration of land-based resources, but also on the mechanisms individual members of a community use to control who benefits from resources. Furthermore, by addressing these different dimensions of access, it is argued on the one hand that the policies and laws implemented in the early 1990s made it possible for some actors to enhance their mechanisms of access, increasing their benefits from land-based resources and their ability to concentrate these benefits to specific sectors of the social group.

One of the most critical access mechanisms to receive the influence of the land reform has been property. The introduction of land certificates implied a deep change in the claim over land that members of the agrarian community had before the land reform took place. Land, and especially agricultural plots passed from being a household resource, to an individuals' possession. All of a sudden, members of the agrarian community without the legal recognition of land rights got excluded from its usufruct. Furthermore, members of the agrarian community in possession of official land certificates concentrated the benefits obtained from land use (such as mining or forestry). This change due to the land reform brought deep modifications on other types of access mechanisms. For instance, the interpersonal relations and identity of individual households changed. After the implementation of land certificates some villagers were recognized as *Ejidatarios* or *Comuneros*; a characteristic that allows them to differentiate themselves from the rest of the community, and form groups that shape the flux of land-based resources' benefits across the whole agrarian community.

External interventions in the form of land policies and development programmes modify the internal structure of the agrarian community and the social

relationships of its members. This represents a shift in their ability to benefit from land-based resources. Some of these changes are closely related to the way in which the process of land reform facilitated the emergence and reinforcement of local elites that control specific access mechanisms to maximize their benefits from land-based resources. Even though there is a relatively minor economic significance of land-based activities, control over land-based resources is still at the core of the conflicts among members of the agrarian community. Given the close attachment that members of the agrarian community have over land, non-material benefits remain important when looking at the importance of land-based resources. Hence, groups of households exercise power –as the capacity to influence others, to maximise their groups’ access to land-based resources.

8.3. Main theoretical contributions

This section explains how the empirical findings previously highlighted add to knowledge in theoretical terms. Furthermore, this section also highlights the implications of these theoretical contributions towards the better understanding of land, and land-based resource policy change in Mexico. To do so, this section relates to two main paradoxes provided by this research in empirical terms: first, that the meaning of land and land resources that agrarian communities have overtakes the reductive idea of land as a productive resource; and second, that the premises of boosting agricultural growth and poverty reduction that land policy in Mexico offered, were not achieved.

Regarding the first paradox, this research revitalises some of the most relevant studies about agrarian communities not only in Mexico, but also across Latin America (For the case of Mexico see Bartra 1974, 1999). The insights provided by this research add to the knowledge of how agrarian communities work together and access natural resources; even though the low profitability of agriculture. Although some of the relevant literature about access to land resources in Mexico highlights the role of knowledge and the alternative conceptions of resources that indigenous groups provide (See Long 1993, Escobar 2008), this research sheds light upon some of the most relevant aspects of how agrarian communities use a wide range of mechanisms to benefit from land.

Regarding these mechanisms, the first insight provided by this research is that property, as an access mechanism, is more than ownership. The empirical analysis of the way in which property constitutes a mechanism by which agrarian community members derive benefits especially from land illustrates that, when it comes to access to resources, the notion of property entitles complex notions of authority relations and rights. Furthermore, this research demonstrates that the land reform of the early 1990s in Mexico tended to look at property in terms of land ownership; overlooking the complex set of authority and rights that the wider concept of property entails. Consequently, this research demonstrates that property cannot be reduced to the official recognition of land rights. The analysis of the case study shows that there are alternative ways of sanctioning claims of property as legal, that is the case of local governance bodies (such as *Ejido* and *Tierras Comunales* councils).

When it comes to property, access and land-based resources approaches have two nuances. On the one hand, scholars of land reform have paid more attention to the effects of the implementation of policies aimed at privatizing the *Ejido*, e.g. the introduction and distribution of land titles. On the other hand, property is often seen as a wider concept than access. This research steps beyond the minimalist analysis of land reform as a series of land certifications and titling. It is argued that land reform is a package of policies that include the design and implementation of a wide array of policies, programmes and laws that have direct implications on land-resource access. Land titling and certification is only one of these policies. Hence, land reform brings changes to a series of access mechanisms, of which property is only one of them. This research locates property at the core of access, but among a wider set of access mechanisms that receive the effects of different policies.

Individual households also respond to the implementation of land-based resources policies. This finding represents an extended discussion to the perspective of Long (1993, 1998) about the role of individual actors in agrarian communities in Mexico, as well as their relation with local institutions. Hence, given that members of an agrarian community have two legal frameworks available, household members can choose the forum to sanction as legal their claims over

resources access (on the one hand, the official law comprised by the politico-legal institutions of the State, and on the other, consuetudinary law embraced by customary institutions). The implementation of land-related policies has polarized the management of resources since their users may choose the legal framework more convenient for their interests.

Among the access mechanisms, property needs special attention by policy makers and academics. This research locates property at the core of conflicts between State institutions and local agrarian communities. The evidence supports that these problems are derived from the disconnection and incompatibility between official legal frameworks and consuetudinary law. This incompatibility is reflected in the way consuetudinary and official institutions sanction as legal the different activities and strategies around access to land-based resources.

When it comes to rights-based mechanisms of access, land reform legalises practices that were considered illegal before the early 1990s. This legalization does not only included land transactions, but also practices that were controlled mainly by consuetudinary politico-legal institutions. That is the case for migration. The introduction of a new agrarian law that allows members of the household to leave the community without the risk of losing their official land rights meant entire families left the land uncultivated while migrating to different urban centres. This is a vivid example of how the modification of official property rights changes the way in which land is accessed locally.

In an effort to tackle and counter the effects of external interventions on the form of land policies, local politico-legal institutions have a levelling influence when it comes to the differentiation of households (Long 1998). That is the case for the traditional indigenous council that on the one hand represents the indigenous identity of the whole agrarian community in front of external politico-legal institutions, however, and most importantly, on the other hand it enforces an alternative set of consuetudinary norms that often overshadow those from the State.

Although specific access mechanisms such as property, or structural and relational mechanisms such as identity and interpersonal relations have received more direct

modifications due to the introduction of land reform-related policies, other mechanisms of access have suffered fewer modifications. That is the case for knowledge, which depends on other social and cultural factors. Although knowledge is an access mechanism that is shared by members of the community across a wide array of activities, it was demonstrated that it plays a central role when it comes to the way in which the agrarian community receives external interventions from the State. Having a deep knowledge of land-based activities allows the agrarian community to take collective decisions, not only in terms of how agriculture is carried out, but also how the whole community should or should not participate in land policies. Knowledge, therefore, constitutes a common trait that enables agrarian communities to react collectively in front of external interventions.

Regarding the second paradox, this research demonstrates that land reform failed to deliver the promises of reducing poverty and boosting agricultural growth. The analysis of wealth, combined with the role of access mechanisms showed that the current productive situation responds to a wide array of factors that locate households into different levels of both agricultural production and poverty. To complement this finding, this research identifies a series of other productive resources (labour, technology and financial capital) as alternative means to obtain benefits from local land-based resources. The main argument behind this classification is that control over these other productive resources determines the distribution of access to landed resources, together with the access mechanisms.

The case of migration illustrates this issue with clarity. On the one hand, the land reform increased migratory patterns by removing the restriction regarding land use. It is possible to affirm that land reforms and land policies directed to privatize or even just to increase land marketability are likely to introduce changes that were not perceived or planned for in the policy design. On the other hand, increasing migration generates problems such as land abandonment; increases the age of the community's inhabitants and lack of labour force, among others; however, it also provides the opportunity to control the distribution of technology, labour and financial capital within the community. Migration, therefore, is a

productive resource that has deep implications to the situation of poverty and agricultural production of local households.

Those households that control other productive resources are capable of diversifying their livelihood portfolio to a larger proportion than those without the same chance. As it was shown in Chapter 7, financial capital might be the most critical productive resource besides land-based activities. Control over financial capital allows households to concentrate not only agricultural land (by carrying out the land transactions legalized by the land reform –rent, buy or sharecrop), but also the distribution of labour and technology. These processes of land grabbing aggravate the struggle of landless households to derive benefits from resources, while some other households concentrate these benefits among elitist groups.

Hence, deriving benefits from land-based resources is not exclusive to structural and relational mechanisms. Other productive resources can provide the means by which households derive benefits from land-based resources, either by enabling structural and relational mechanisms, or by providing inputs that households use to obtain benefits from land-based activities. In order to enable access mechanisms to benefit from land-based resources, San Francisco Oxtotilpan's households need to diversify their livelihoods by putting into practice other productive resources besides land-based activities.

8.4. Implications for Land Policies

This research contributes to the discussion of the effects of long-projection policies regarding access to natural resources. Some of its effects are still visible nowadays in agrarian communities in Mexico, even after almost 20 years of the land counter-reforms were implemented.

Although providing insights as to how to change the current legal framework is an objective beyond the focus of this research, the detailed study presented unveils the need to take into account four aspects that have been left aside from the design of policies with potential effects on land-based resource access. These implications are a) the need to highlight the agrarian character of rural communities in Mexico, b) the empirical evaluation of access mechanisms, c) the importance of consuetudinary property rights to be included in the statutory law

and d) the significance of indigenous identities. It is argued that by taking into account these issues, it is possible to strengthen the communication and coordination between social actors at the agrarian community level and external institutions –mainly from the State.

The insights provided by this thesis support the need for land policies to take into account the agrarian character of rural communities in Mexico. Considering the agrarian aspects of rural communities in Mexico could allow a better understanding of the practices and values of individuals with the political and economic forces that shape their ability to benefit from land-based resources. It may provide policy makers with context-specific insights about the local political economy, making possible designing and implementing land-resources policies better adjusted to the local conditions of both the agrarian communities, and the land-based resources available.

Land policy implementation cannot only be sensitive to context at the agrarian community level. As this research points out, within the community and at the household level, there is a series of access mechanisms that should be taken into account by policies that could have intimate impacts on the internal organization of families. Introducing restrictive policies, especially regarding biodiversity conservation (see Chapter 5 on the introduction of LEGEEPA) has direct implications on the internal organization of households that need to put into practice a series of mechanisms that enable them to obtain benefits; despite the restrictions imposed. The implementation of policies regarding management and conservation of natural resources need to take into account the different ways in which individual households put in place a set of access mechanisms. By doing so, the policy can avoid, from its design stages, the criminalization of practices that represent the very means by which individual households subsist.

The analysis of access to land-based resources in San Francisco Oxtotilpan also highlights the importance of consuetudinary rights and their inclusion into the statutory legal system. One of the most notable characteristics of the agrarian legislation in Mexico is that it is uniform for the whole country. Cultural, economic and even political particularities are left aside from the official

governance of resources due to the generalized idea of uniformity in Mexico's rural context. It is necessary, therefore, to consider the local treatment of consuetudinary rights to implement land policies and modify agrarian legislation accordingly.

Policies dealing with access to land-based resources should take into account these issues of legal pluralism. However, in order to achieve this objective, it is necessary to carry out detailed academic studies focusing on the particularities of the structures behind agrarian communities' governance. The implementation of future land-resources policies should aim at finding mechanisms to link consuetudinary norms and official legislation into a system of governance based on inclusive policies of access to land-based resources. Recent studies deal with the possibility of implementing inclusive forest policies that could compensate households from official land-use restrictions (Mullan *et al.* 2011, Long 1998). This research avenue is worth further investigation, especially in the context of other land-based resources.

A proposed point of departure could be the acknowledgement of the indigenous identity as a guarantor of consuetudinary rights. The case of San Francisco Oxtotilpan demonstrates that indigenous identity and the role of consuetudinary politico-legal institutions could be potentially important for a design of an inclusive, but sensitive-to-context agrarian policy. A regional agrarian policy could implement land programmes that mediate between the needs of agrarian communities and the agendas of politico-legal institutions of the State.

8.5. Further research

During the long process this study has taken, it was possible to recognize a series of limitations and ways of improvement that could be taken into account for similar researches in the future. This section provides some insights as to how future research on access to natural resources under the influence of external interventions in the form of political reforms could avoid some of the problems this research has encountered. Hence, the following ideas try to fill some of the gaps this research has left, suggesting different alternatives to some of the aspects

that this study was unable to cover. In the same way, this section seeks to shed light upon the issues that this thesis points as avenues for further research.

To start with, it is important to highlight that research on land reform are recovering relevance in the international development agenda. Together with the adoption of new approaches to natural resource conservation and development, national governments are prone to implement new packages of land-related policies with a wide array of effects. There are two areas that require further research accordingly. First, it is necessary to examine the effects of specific policies that have been implemented on other natural systems and legal contexts; and second, research is needed to integrate the particularities of access mechanisms and strategies that in turn will inform the formulation of integrating and comprehensive policies linking development and land-based conservation.

When it comes to policy assessments, it will be interesting to apply similar analytical frameworks to specific activities related to access to specific resources. In that sense, there is a need for obtaining relevant data about the access mechanisms put in place by non-agrarian communities that also rely on land-based resources. The case of communities located out of natural reserves or urban and peri-urban communities poses an important challenge for access research. Further access research can be improved by comparing the political economy of different contextual spaces such as those mentioned. Meso- and macro-scales of access analysis (such as the region, state or national levels) need to reach a clear understanding of the different modes and shapes that can take the same access mechanism under different political, social and economic contexts.

The use of technology could play an important role in reaching a better understanding of the effects of land-resource policies across a period of time. Further access research could rely on a combination of alternative methodological approaches to natural resource management. For instance, cartographic analysis of land use change can shed light onto more specific problems and constrains of land-based resources in the rural sector.

The field of property opens up a critical issue of research, especially when it comes to integrating access into development and conservation policies. It is

necessary to explore the role of conflicts between official and consuetudinary property rights; however, further research needs to focus on finding new ways of linking these two different claims of property into a common legislation. This research suggests interesting further research avenues when looking at the potential of consuetudinary claims of property to solve conflicts involving local governance bodies and State-based institutions. The current panorama of social conflicts in Mexico, mainly regarding indigenous and *campesino* movements has deep roots in divergent property claims between the State and local communities. Further access research urges researchers to find solutions to the problems arising from the interplay of different legal systems.

When it comes to obtaining benefits from land-based resources, this research suggests the need to further investigate the specific restrictions imposed by land-related policies; such studies could elaborate on the extent to which it is possible to implement mechanisms of compensation for those households restricted from obtaining both material and non-material benefits from land-based resources.

National agendas need to further explore indigenous rights. San Francisco Oxtotilpan as a case study shows that indigenous peoples have specific ways of relating to each other and their available land resources. Furthermore, indigenous communities have governance systems deeply rooted in their culture and social structure that require special attention in the implementation of new land and natural resource policies. It is important to investigate how these systems of governance can be inserted into current official legal systems. This line of research could be informed by the combination of the methods followed in this research, and insights from law and legal studies or human rights academia.

One of the most important contributions to knowledge and to theory that this research provides is the possibility to re-evaluate the understanding of access from the voices of the actors at the local community level. This novel perspective to access allows the development studies academia to better understand the mechanisms by which people derive benefits from resources. In conclusion, this study provides a rich set of empirical findings that not only inform theory and

practice of development studies and natural resource management, but also points at useful avenues for further research that are worth exploring.

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Appendix 1: Survey Questionnaire

FORM A

FORM A: BASIC HOUSEHOLD DATA

Household Code: Village:

Members of HH currently resident

Enter code and short description, as underlined

ID	Name	Age (years)	Sex	Relationship to H/H head	Education Level Reached	Main Occupation
	coding - - - ->		1 - <u>M</u> 2 - <u>F</u>	1 - <u>Head</u> 2 - <u>Wife/husband</u> 3 - <u>son/daughter</u> 4 - <u>Other relation</u> 5 - <u>Other perman</u>	1 - <u>None</u> 2 - <u>Primary School</u> 3 - <u>Secondary School</u> 4 - <u>High School</u> 5 - <u>Technical Edu</u> 6 - <u>Higher</u>	1 - <u>Child</u> 2 - <u>School</u> 3 - <u>House</u> 4 - <u>Domestic Farmer</u> 5 - <u>non-domestic Farmer</u> 6 - <u>employee (specify)</u> 7 - <u>Self-employed (non-farm)</u>
			code: :	code: :	code: :	code: :
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

If more than 10 HH residents, continue on a second form A

Total resident HH members:

Members of family permanently or mostly away

ID	Name	Age (years)	Sex	Relationship to H/H head	Education Level Reached	Main Occupation
			code: :	code: :	code: :	code: :
11						
12						
13						
14						
15						

If more than 5 family members permanently or mostly away, continue on a second form

Members of family permanently or mostly away (same people as for previous question)

ID	When left	Years away	Current place of residence	Sends money home?	How often?	How much (each time)?	Year total
	Year Person Left	No of Years Away	1 - <u>nearby</u> 2 - <u>Mexico City</u> 3 - <u>town (name)</u> 4 - <u>city (name)</u> 5 - <u>other state</u>	1 - <u>Yes</u> 2 - <u>No</u>	1 - <u>Each week</u> 2 - <u>Each month</u> 3 - <u>Few times year</u> 4 - <u>Occasionally</u>	Amount Each Time	Calculate Amount for Year
			code: :	code: :	code: :		
11							
12							
13							
14							
15							

TOTAL

FORM B

FORM B: LAND AND HOUSING

Household Code: Land Council Membership:

1-comunero 2-ejdatario 3-posesionario 4-avecindado

B1

What is the current price of land in this area?

Field ID	Area & Wat. Sup.	Ownership	Rent In Land	Rent out Land	Use of Field	Harvest/Plough by	Field Tenure
	Area of each field or plot (HA.) Wat. Sup 1- temporal 2 - Irrigation	1 = owned- <u>used</u> 2 = owned- <u>used</u> 3 = own-rent out 4 = rent in	Amount Received Pesos	Amount Received Pesos	1 = maize 2 = oats 3 = beans 4 = <u>habas</u> 5 = <u>ulu</u> 6= Forraje	1 = <u>jointly</u> 2 = <u>women</u> 3 = <u>men</u> 4 = labourers 5 = Jointly +Labourers	1 = <u>Elite</u> 2 = <u>Comunal land</u> 3 = <u>Private Property</u>
A							
B							
C							
D							
E							
F							
G							
H							
I							
J							

Sub-Totals (Rentals Pesos): Total No of Plots: Total Area Owned:
(= sum codes 1-3)Total Area Used for Farming:
(including land rented in or borrowed)

B2

(all data here refers to the past year up to the date of interview)

	No. Yes Ago	No. born	No. Died	No. Bought	No. Sold	No. Gift In	No. Gifts Out	No. eaten (at home)	Current Price
Cattle									
Goats									
Sheep									
Pigs									
Chickens**									
Turkeys**									
Other.....									

* adult animal or bird, price that could be obtained by selling now

** Count only adult chickens or turkeys

Enter in Q consumed

column on form E

Enter in Q sold

column on form E

B3

Wall Construction: 1 (concrete) 2 (brick) 3 (wood) 4(mud & wattle)Roof Construction: 1 (Concrete) 2 (tiled) 3 (asbestos), 4(wood)Floor Construction: 1 (cement) 2(earth)Source of Water: 1 (Piped) 2 (Pozo) 3 (Fetched)Source of Power: Time taken to fetch water (mins)

FORM C

FORM C: HOUSEHOLD ACCESS TO AID AND CREDIT

Household Code:

C1 Savings and Credit

Social Aid Programmes available for the household: (Enlist all)

Programme Name	Participants	Amount Pesos	Use of Resources	Does this prog. Allow savings Y/N	Is this a regular saving? Y/N	Amount
procede procampo Apadrina oportunidades mujeres trab						
COMUNEROS						
EJIDATARIOS						

(and how often?)

total

Aside from the programmes mentioned do any members of the household have savings with a credit organisation or bank?

Y/N

FORM E

FORM E: LIVESTOCK AND OTHER NR OUTPUTS AND INCOME

Household Code:

Milk Cattle: No: Total Days Milked: Average Daily Milk Yield:
(per cow)

Name of Activity	Unit	Quantity Consumed/buyed (Form B) A quantity	Quantity Sold (Form B) C quantity	Total Produced E = A + C	Ave Price F	Gross Income G = E x F	Variable Costs H	Net Total Income I = G - H	selfconsumption
Livestock				0		0		0	
cows				0		0		0	
sheep				0		0		0	
horses				0		0		0	
				0		0		0	
MILK				0		0		0	
				0		0		0	
Sub-Total Livestock:						0	0	0	
Other NR*									
mushrooms				0		0		0	
soil				0		0		0	
herbs				0		0		0	
timber				0		0		0	
wood				0		0		0	
				0		0		0	
				0		0		0	
Sub-Total Other NR:						0	0	0	

* Income-generating NR-based household activities such as Pulque brewing, brickmaking, charcoal making, collection of firewood and mushrooms, and other forest products, fish processing (selling) should be listed here, and calculations made about their contribution to household income.

TOTAL

Time Spended on grassing livestock
 Rainy W Dry W total
 months

Profitability Perception only Livestock
 win
 even
 loose
 n/a

FORM F

FORM F: WAGES & NON-FARM INCOME RECEIVED BY HOUSEHOLD

(this form relates to wages, salaries, non-NR businesses such as trading, shop keeping etc, pensions and other income sources not listed elsewhere)

Household Code:

Each household member who has earned other outside income during the past year should be interviewed using this form. For example, if there are 3 HH members who have earned wages, salaries, self-employment incomes (i.e. own-business income), or have received payments during the year, then fill in this form 3 times (one for each person).

Name of Respondent:

Sex:

	Type of Work	Amount Earned Last Month	Amount Earned Past Year	Place of Work
		Enter here earnings for past month. For <u>regular</u> pay this should equal daily pay X no. days worked per month.	Enter here earnings for year up to date of interview. For <u>regular</u> earnings, this should equal monthly X 12	1 - <u>nearby</u> 2 - <u>Mexico City</u> 3 - <u>town (name)</u> 4 - <u>city (name)</u> 5 - <u>other state</u>
CODE		PHYSICAL AMOUNT UNITS		CODE
1	Payments-in-Kind Cash Equiv. (When possible):	<input type="text"/>	<input type="text"/>	<input type="text"/>
2	Wages - Seasonal	<input type="text"/>	<input type="text"/>	<input type="text"/>
3	Wages - Regular	<input type="text"/>	<input type="text"/>	<input type="text"/>
4	Salary - Private Sector	<input type="text"/>	<input type="text"/>	<input type="text"/>
5	Salary - Govt Sector	<input type="text"/>	<input type="text"/>	<input type="text"/>
6	Business Income (net personal income from business i.e. gross income minus costs)	<input type="text"/>	<input type="text"/>	<input type="text"/>
7	Pension Payments	<input type="text"/>	<input type="text"/>	<input type="text"/>
8	Social Aid Programmes	<input type="text"/>	<input type="text"/>	<input type="text"/>
9	Other Non-Farm (e.g. property rents other than land, insurance payments etc.)	<input type="text"/>	<input type="text"/>	<input type="text"/>
		YEAR TOTAL:	<input type="text"/>	<input type="text"/>

Number of Forms F completed for this household

Total Non-Farm Income Earned by Household Members
(sum of year totals for all Forms F completed for this household)

Business Income i.e. Non-Farm Self-Employment (Code 6 above)

Additional Details

Type of Activity:
e.g. trading, shop keeping, etc.

No. of Employees:
how many people do you employ?

FORM G**FORM G: HOUSEHOLD INCOME SUMMARY AND CHECKLIST**

This checklist should be completed jointly by the enumerator and the supervisor after all the other forms have been completed and collected together. This provides an opportunity for checking the accuracy of the data collected, and values that appear implausible should be followed up to check for accuracy

ID	Description of Income	Source of Data	Amount	Checked
1	Crop Income*	Form D	<input type="text" value="0"/>	<input type="checkbox"/>
2	Livestock Income*	Form E	<input type="text" value="0"/>	<input type="checkbox"/>
3	Income from Renting Out Land	Form B	<input type="text" value="0"/>	<input type="checkbox"/>
4	Other Household/NR-Based Incon	Form E	<input type="text" value="0"/>	<input type="checkbox"/>
5	Non-Farm Income (Year Totals)	Form(s) F	<input type="text" value="0"/>	<input type="checkbox"/>
6	Remittance Income	Form A	<input type="text" value="0"/>	<input type="checkbox"/>
7	Estimated Income In-Kind When available	Form F (1)	<input type="text"/>	<input type="checkbox"/>
Total Income From All Sources			<input type="text" value="0"/>	<input type="checkbox"/>

* For crop, livestock and other household/NR income, it is the Net Total Income that should be entered here.

FORM H
FORM H: CHANGES IN GAINING A LIVING DUE TO
LAND REFORM-RELATED PROCESSES

Household Code:

H1 At present members of this household gain a living by:
 (the purpose here is to reconfirm the main activities found in the household survey and subsequent interviews)

1		2		3	
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H2 Has this pattern of activity changed over the past five years or since the introduction of Proceede ?

H3 If yes, then what were the main activities for gaining a living five years ago? Or right before the introduction of Proceede?

H4 Paying attention just to farming activities, does the household have farm activities (i.e. different crops or animal types) than 5 years ago? Why?

H5 Has the HH started "new" farming activities in the past 5 years? Why?

H6 Would the household like to engage in any specific new farming activity, or expand any existing activity? If yes, specify? What is preventing this from happening?

H7 Moving now to non-farm activities, does the household on non-farm activities now than before?

H8 If the household is relying *more* on non-farm activities than before, what are the main reasons for this?

H9 If the household is relying on fewer non-farm activities than before, what are the main reasons for this?

H10 Would members of the household prefer to have non-farm activities in the future?

H11 If members of the household would prefer to engage in more non-farm activities, what type of activity, and what are the main things that prevent them from doing this?

H12 If members of the household would prefer to engage in less non-farm activities, what are the reasons stopping them from specialising more in agriculture?

H13 During the past five years, has the situation of this household been

H14 What are the main reasons given by household members for these changes or trends?

H15 During the past ten years, has the amount of land available to the household for agriculture

H15' During the last ten years what have been the plot actions taken

Rent in	<input type="checkbox"/>
Rent out	<input type="checkbox"/>
selling	<input type="checkbox"/>
sharecropping	<input type="checkbox"/>
buying	<input type="checkbox"/>

H16 During the past ten years, has the amount of land available to the household for natural resource use

H17 If available land has reduced or increased, what have been the reasons for these changes?

H18 Have you noticed any advantages of the introduction of PROCEDE or any other related programme?

<input type="text" value="YES / NO"/>	

H19 Have you noticed any disadvantages of the introduction of PROCEDE or any other related programme?

<input type="text" value="YES / NO"/>	

Appendix 2: Research Techniques applied

List of Research Activities referred in the text

Page	REF	DATE	RESEARCH TECHNIQUE	RESPONDANT POSITION (Code in Dataset 1)	ORGANIZATION / Agrarian Status	LOCATION
101	I-1	09/10/2008	Semi-structured Interview	Comisariado Ejidal	Civil Authorities	San Francisco Oxtotilpan
104	I-2	14/01/2009	Semi-structured Interview	Household head (286)	Ejidatario	San Francisco Oxtotilpan
106	I-3	22/02/2009	Semi-structured Interview	Household head (131)	Posesionario	San Francisco Oxtotilpan
122	FG-4	28/01/2009	Focus Group	3 avecindados 4 posesionarios	Avecindados and Posesionarios	San Francisco Oxtotilpan
130	FG-4	28/01/2009	Focus Groups	3 avecindados 4 posesionarios	Avecindados and Posesionarios	San Francisco Oxtotilpan
135	I-1	09/10/2008	Semi-structured Interview	Comisariado Ejidal	Civil Authorities	San Francisco Oxtotilpan
137	I-4	28/09/2008	Semi-structured Interview	Regional Delegate	Ministry of the Agrarian Reform	Mexico City
138	FG-1	29/10/2008	Focus Group	1 Comisariado Ejidal 1 Comisariado Tierras Comunales 3 delegados 3 water supervisors	Civil Authorities	San Francisco Oxtotilpan
139	FG-1	29/10/2008	Focus Group	1 Comisariado Ejidal 1 Comisariado Tierras Comunales 3 delegados 3 water supervisors	Civil Authorities	San Francisco Oxtotilpan
140	I-5	06/12/2008	Semi-structured Interview	Comisariado Ejidal	N/A	San Mateo Oxtotilpan
142	FG-1	29/10/2008	Focus Group	1 Comisariado Ejidal 1 Comisariado Tierras Comunales 3 delegados 3 water supervisors	Civil Authorities	San Francisco Oxtotilpan
145	FG-2	22/12/2008	Focus Group	6 Ejidatarios	Ejidatarios	San Francisco Oxtotilpan

Page	REF	DATE	RESEARCH TECHNIQUE	RESPONDANT POSITION (Code in Dataset 1)	ORGANIZATION / Agrarian Status	LOCATION
161	I-6	09/03/2009	Semi-structured Interview	Jefe Supremo	Traditional Authorities	San Francisco Oxtotilpan
162	I-6	09/03/2009	Semi-structured Interview	Jefe Supremo	Traditional Authorities	San Francisco Oxtotilpan
163	I-5	06/12/2008	Semi-structured Interview	Comisariado Ejidal	Civil Authorities	San Francisco Oxtotilpan
168	I-7	18/03/2009	Semi-structured Interview	Household Head (86)	Comunero	San Francisco Oxtotilpan
172	I-8	19/03/2009	Semi-structured Interview	Household Head (211)	Posesionario	San Francisco Oxtotilpan
178	FG-4	28/01/2009	Focus Group	3 avecindados 4 posesionarios	Avecindados and Posesionarios	San Francisco Oxtotilpan
181	I-9	03/04/2009	Semi-structured Interview	Household Head (111)	Comunero	San Francisco Oxtotilpan
187	FG-1	29/10/2008	Focus Group	1 Comisariado Ejidal 1 Comisariado Tierras Comunales 3 delegados 3 water supervisors	Civil Authorities	San Francisco Oxtotilpan
188	I-7	10/02/2009	Semi-structured Interview	Household head (86)	Comunero	San Francisco Oxtotilpan
189	FG-5	03/03/2009	Focus Group	1 Jefe Supremo 1 Fiscal 1 Fiscalito 4 Mayordomos 2 <i>Mbeshoques</i>	Traditional authorities Religious authorities	San Francisco Oxtotilpan
196	GD-1	15/11/2008	Group Discussion –wealth ranking–	3 Ejidatarios 2 Comuneros 4 Posesionarios 3 Avecindados	Household Heads	San Francisco Oxtotilpan
198	I-10	19/12/2008	Semi-structured Interview	Household head (12)	Comunero and Ejidatario	San Francisco Oxtotilpan
199	GD-1	15/11/2008	Group Discussion –wealth ranking–	3 Ejidatarios 2 Comuneros 4 Posesionarios 3 Avecindados	Household Heads	San Francisco Oxtotilpan
207	GD-2	15/11/2008	Group Discussion –wealth ranking–	3 Ejidatarios 2 Comuneros 5 Posesionarios 3 Avecindados	Ejidatario	San Francisco Oxtotilpan

Page	REF	DATE	RESEARCH TECHNIQUE	RESPONDANT POSITION (Code in Dataset 1)	ORGANIZATION / Agrarian Status	LOCATION
208	FG-4	28/01/2009	Focus Group	3 avecindados 4 posesionarios	Avecindados and Posesionarios	San Francisco Oxtotilpan
213	I-11	10/02/2009	Semi- structured Interview	Household head (234)	Ejidatario	San Francisco Oxtotilpan
217	I-12	15/03/2009	Semi- structured Interview	Household head (227)	Posesionario	San Francisco Oxtotilpan
221	I-8	16/01/2009	Semi- structured Interview	Household Head (211)	Posesionario	San Francisco Oxtotilpan
225	I-13	03/04/2009	Semi- structured Interview	Household Head (177)	Avecindado	San Francisco Oxtotilpan
228	I-14	08/03/2009	Semi- structured Interview	Household Head (356)	Avecindado	San Francisco Oxtotilpan

List of Focus Groups and Group Discussions carried out

FOCUS GROUPS			
REFERENCE	DATE	PARTICIPANTS	GENERAL THEMES
FG-1	29/10/2008	CIVIL AUTHORITIES 1 Comisariado Ejidal 1 Comisariado Tierras Comunales 3 delegados 3 water supervisors	<ul style="list-style-type: none"> • Conflict Resolution (internally and external with other State institutions). • Responsibilities of Civil Authorities. • Conflicts between authorities. • Participation of community members. • Assembly organization and elections. • Implementation of Procede and conflicts related to boundaries and titling. • Vigilance and problems related to the National Park. • Land-based resources available and claims of property. • Consuetudinary law (norms).
FG-2	22/12/2008	EJIDATARIOS 6 Ejidatarios	<ul style="list-style-type: none"> • Conflict Resolution (internally and external with other State institutions). • Procedures to become <i>Ejidatario</i>. • Conflicts between members. • Sources of income (livelihood portfolio). • Importance of <i>Ejido</i> authorities. • Implementation of Procede and conflicts related to boundaries and titling. • Conflicts with other members of the community. • Access Mechanisms and their use.
FG-3	26/12/2008	COMUNEROS 9 Comuneros	<ul style="list-style-type: none"> • Conflict Resolution (internally and external with other State institutions). • Procedures to become <i>Comunero</i>. • Conflicts between members. • Sources of income (livelihood portfolio). • Importance of <i>Tierras Comunales</i> authorities. • Implementation of Procede and conflicts related to boundaries and titling. • Conflicts with other members of the community. • Access Mechanisms and their use.
FG-4	28/01/2009	AVECINDADOS AND POSESIONARIOS 3 avecindados 4 posesionarios	<ul style="list-style-type: none"> • Conflict Resolution (with other members of the community). • Means to secure their access to resources. • Relation with State Institutions. • Participation in community governance. • Migration and implementation of procede.
FG-5	24/02/2009	TRADITIONAL AND RELIGIOUS AUTHORITIES 1 Jefe Supremo 1 Fiscal 1 Fiscalito 4 Mayordomos 2 <i>Mbeshoques</i>	<ul style="list-style-type: none"> • Responsibilities and their role in conflict resolution. • Relation with State institutions. • Relation with other civil institutions from the community. • Traditional and productive calendar. • Festivities and traditions. • Relation with neighbour communities. • Consuetudinary law and their importance as authorities. • Problems and threats to the <i>Matlatzinca</i> future (in cultural, productive, economical and social aspects).

GROUP DISCUSSIONS				
REFERENCE	DATE	PARTICIPANTS	ACTIVITIES	THEMES
GD-1	15/11/2008	3 Ejidatarios 2 Comunereros 4 Posesionarios 3 Vecindados	1. Wealth definition. 2. Household Definition	<ul style="list-style-type: none"> • Discussion of the elements of local wealth • Definition of households and families. • Definition of household heads.
GD-2	17,18/11/2008	3 Ejidatarios 2 Comunereros 5 Posesionarios 3 Vecindados	1. Pilot Wealth Ranking Exercise 2. Wealth Ranking	<ul style="list-style-type: none"> • List of household heads and their distribution by colony. • Sorting lists of households • Determine the three levels of wealth. • Grouping each household according to its wealth category.
GD-3	21/11/2008	TIERRAS COMUNALES' AUTHORITIES	Discussion about access to land-based resources and land reform	<ul style="list-style-type: none"> • Importance of land reform. • Distribution of economic benefits. • Resolution of internal conflicts. • Migration and remittances. • Conflicts with police and other institutions. • Importance of the National Park. • Problems of land-based governance.
GD-4	22/12/2008	GENERAL ASSEMBLY	Meeting with all community members (Public meeting)	The discussion was centred on the construction of a new health centre and the election of new authorities for the following year. I was introduced to the community and explain the aims of my research and my activities.
GD-5	28/02/2009	GENERAL ASSEMBLY	Meeting with all community members (Public meeting)	Organization of common tasks such as control of wild fires and irrigation channels' maintenance. Participation of the community in two reforestation programmes.
GD-6	25/04/2009	EJIDO'S AUTHORITIES	Discussion about access to land-based resources and land reform.	<ul style="list-style-type: none"> • Importance of land reform. • Distribution of economic benefits. • Resolution of internal conflicts. • Migration and remittances. • Conflicts with police and other institutions. • Importance of the National Park. • Problems of land-based governance.
GD-7	31/05/2009	GENERAL ASSEMBLY	Meeting with all community members (Public meeting)	The meeting aimed at organizing the community to request material for the extension of the drinking water main pipe from four springs. Organization of a drinking water committee to request material for its construction.

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