RIGHTS, PRESSURES AND CONSERVATION IN FOREST REGIONS OF MEXICO. The results of a survey on the conditions of community forests.

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Introduction

For decades forests debate has had an important place in public debates in Mexico. The predominant image of the country´ s forest is that of a generalized deforestation, accompanied by diagnoses that blame collective property and rural poverty. It is true that deforestation and forest deterioration are frequent realities in many poor Mexican regions, but these processes cannot be understood in their diversity and complexity, through simple equations and reductionistic approaches. Simplified perceptions of socio-environmental realities become worrisome on their turn, when they work as unquestioned presumptions for public policies. Panaceas created and proposed from centralized arenas, foreign to local realities have often result in scare or no capacity to address specific problems and needs.

In the following pages we present some of the main demographic, social and economic characteristics of these communities, their uses of the forests and their perception on forest pressures. We also include a brief description of forest policies during the 2000 decade and their general impacts on forestry. Based on the results of empirical research, this work seeks to provide information and insights for a more comprehensive understanding of Mexican forest communities, closer to the particular conditions of forest communities.

1. Mexico´ s Forests, Ecological And Social Values.

México has 141,745,168 hectares of forest land, this is 73% of the national territory., includying a a variety of forest ecosystems: 32.3 million hectares of pine and pine-oak forests, 1.8 million of cloud forests, 33 million of tropical rain forests, and 56 million of dry forests (SEMARNAT, 2006)

During the last decades forest conservation and forest environmental services gained increasing importance in the national and the global perception. Mexico is considered as one of the mega-diverse countries in the earth and most of its biological diversity

occurs in the forest areas[i]. There is a growing social "perception o scarcity" of hydrological services provided by forests and of the roll they play in the mitigation of the impacts of the catastrophic climatic events that several regions increasingly suffer. Social perception is generally expressed as concern about deforestation. The last two federal administrations have strongly addressed this concern, nevertheless recent forest policies have only had imited efficiency[ii] (Merino Leticia and Ortiz Gabriela; 2008) Mexican forests also have highly biological productivity. This characteristic of the natural capital gives Mexican forest producers an important potential advantage that only few cases take advantage off. Only a third part of the forests with current commercial value[iii] is under legal extraction, while important forest areas need restoration and/or improvement of the management systems.

Mexican forest regions are home of nearly twelve million people (Instituto Nacional de Geografía y Estadística; FAO, 2000) who depend on forest resources in a variety of ways and levels and frequently live under extreme poverty conditions, a high proportion of them are indigenous.

Forest and collective property are closely related in Mexico: the vast majority of forests lands (75%) are under collective tenure and more than 50% of all collective holdings are forest communities[1]. This key feature is the result of an extensive Agrarian Reform implemented from the 1930 to the early 1980.[iv] There are two types of collective property: *ejidos and comunidades agrarias. Ejidos,* the most extended were created when the state granted lands to groups of solicitors; in *comunidades agrarias* (mostly of indigenous origin) the state recognized historical property rights to ancient communities over the territories they claimed as their own. The most relevant current difference among them is the capacity of *comunidades* to include new members in the group of

[1] In this text we use the word "community" in a general sociological-anthropological sense as a group of people who share elements of identity and patrimony, applied to Mexican forest regions we use this term to refer to the two types of property existing in Mexico´s country side *ejidos and comunidades agrarias.* When we refer specifically to communities with the second type of collective property, we call them *comunidades agrarias.*

owners and the legal impediment of the *ejidos* to do it, as *ejidatarios* or property right holders) can only inherit their rights to one successor)[v].

Within *ejidos and comunidades agrarias* there are areas that are individually possessed and managed, basically agricultural plots and houses in the settlements, but the federal agrarian and forest federal laws forbid the division of forestlands. Forests within collective properties are by law commonly owned and managed.

The National Forest Commission (CONAFOR) estimates that 105 million hectares are collectively owned by 30,305 *ejidos* and *comunidades agrarias.* The Federal Constitution recognizes and defines collective property, but also limits its rights as it gives the nation the right to rule the use of forest, water and underground resources.

2. A Brief History Of Forest Management And Forests Policies In Mexico.

Communal property has deep historical roots in Mexico. It was present in pre-hispanic times, and prevailed after the Spanish conquest and colonization, when forest regions served as refuges for the survivors of the European invasion, and maintained the status of collective possessions. During the three centuries of the Spanish rule communal tenure was the only type of property allowed to indigenous people by the colonial government (Warman, A., 2003). During the XIXth century after the independence from Spain, the liberal policies in vogue, regarded private property as an imperative for the desired economic and social modernization. Communal lands and the properties of the Catholic Church -the main landowner of Mexico at the time- became public property. From the 1870 to the 1890 this lands were given in concessions to rail-road companies or sold to privates close to the central government. Land concentration in private hands became larger than it was during the colonial time. Large landholdings known as *haciendas* rapidly grew in number and size, frequently at the expense of old communal lands. *Haciendas* also benefited from the cheap and often forced labor of the dispossessed commoners and their families. Many *haciendas* specialized in profitable export crops such as sugar, cotton, henequen, tobacco and

coffee. Many forest communities were able to prevail and maintain control of their territories protected by their remoteness and the poor agricultural value of their lands. The restoration of the old communal lands to local communities and the *reparto* (access) of the lands of the *haciendas* to their workers, were the main claims of the massive social movement of the beginning of the XXth century. After the revolution the agrarian reform acquired a critical political importance, and the land tenure policy became a pivotal strategy for peace keeping, but also for the political control of the rural society[vi]. Nevertheless some decades after the revolution, during the postwar years, as industrial development of the country became a central policy goal, contradictions of paradigms and objectives among different policies emerged. While the Federal Agrarian Department[vii] granted property rights to rural communities all over Mexico, forest communities were seen as unable to efficiently perform forest logging providing the raw materials that the then expanding national economy needed. During the 1950, long term logging concessions[2] in favor of private and (later) state owned industries, were imposed in the richer forest regions of the country, in spite of the frequent communal ownership of the lands. Communities were forbidden to make any use of the forest areas under concessions. Other frequent way in which forest communities lost the hardly gained property rights was the imposition of logging vans in the forests of many watersheds close to urban concentrations. At the mid 1950 vans were in place in more than 50% of the nation´ s forestland (Bray and Merino, 2004; Merino; 2004; Boyer, 2005; Merino and Segura, 2005, Bautista, Larissa; 2007).

During more than a decade analysts affiliated with IASCP and other research and lobbing groups have underlined the importance of the legal recognition of property rights to local forest user groups, as a key element for the success of the efforts to build sustainability and equity (Ostrom 1990, McKean 2000, Whyte and Martin 2002; Sunderlin, 2008). The paradox of Mexico´ s forest history is that of forest communities

that gained legal property rights way before anywhere else in the world in modern times, whose rights were frequently unrecognized by the same State that had granted them. In the context of these ambiguous institutional arrangements, communities tended to perceive forests as obstacles to real tenure; private industry´ s incentives favored “mining forestry”, oriented to maximize short term profits, as industrials lacked formal property rights and their operations were often opposed by local communities. Finally the profits of the state owned forest enterprises, established mostly in the 1970, were generally used to finance other social or productive activities, defined as national priorities, and were rarely reinvested in forest protection and forest production. Forest cover was generally preserved in the areas under concessions, but forests lost quality as a consequence of their management and extraction practices[viii]. Poor communities, legal owners of the forests, completely lost legal rights to use and manage them, while the market demand of forest raw materials persisted and grew. The local need of income and domestic forest goods on its turn also increased during this period as a result of population grow and market economy expansion. A last difficulty was (and still is) the very week capacity of the government agencies to monitor and sanction illegal logging, that results in very low costs of violating the law. Forest vans had mostly perverse impacts creating “de facto” open access to communal forests, clearly associated with forest deterioration and deforestation (Boyer, 2005; Merino and Hernández, 2004). Policies and institutional failures had pervasive impacts that have proved very hard to revert, some of the most relevant are: (a) important fractures in the forest production chains, (b) lack of investment in the forest sector (including investment in forest resources protection and management, forest roads and industrial infrastructure), (c) des-incentives for forest owners to protect and use forests based on long term perspectives, and incentives for different forest users to maximize short terms profits with negative impacts on the forest systems.

3. Community Forest Management. Potential and Limitations. Case studies.

By the late 1970 it was clear that neither concessions nor vans, were close to reach their original objectives, forest deterioration had rapidly grow in those areas under vans while forest concessionaries´ industries operated at an average half of their capacity. Logging concession periods were close to and end and communities strongly opposed their renewa demanding rights to manage and use forests resources. Simultaneously a progressive current within the forest administration, grouped in the Department of "Forest Development" (DDF) promoted a new "policy experiment": the support to commercial community forestry. This initiative was first implemented in areas under vans that were lifted (Bray, Merino and Barry; 2005) and some years latter in forests under concessions, where this initiative got its main successful cases. Pro-community forest policy was based on the assumption that communities could be both: efficient forest producers and viable stewards for forest conservation. The DDF programs were based in intense training and advisory to forest communities, in the promotion of communities´ associations in order to get autonomous access technical advisory on forest management and better market conditions (Alatorre, 2000; Bray and Merino, 2004). After few years some of the communities with the most valuable forest assets and better internal organization achieved amazing gains: they made important profits from their forest businesses, they became able to build and maintain forest roads, to buy extraction and industrial equipment and to organize their own technical and administrative teams. In the majority of the successful cases the profits of the forest activities were re-invested in the development of forest assets including forest protection and improvement of forest management systems. It is worth to mention that commercial credit and public funds played only a marginal roll in the growth of communities´ assets. Some communities soon adopted an environmental agenda, forest certification under the Forest Stewardship Council scheme was first applied in Mexico in 1993, ten years latter around 800,000 of forest hectares and 12% of the timber produced in the country were certified (Klooster, 2004). A new forest law

published in 1986 prohibited concessions and granted the communities the right to be consulted on the establishment of any policy that restrained their property rights.

During the late 1980 and early 1990 governmental support of community forestry faded. The success cases appear to be hard to replicate, due to diverse difficulties: the opening of national market to foreign forest products[ix], particularly after the implementation of the North American Free Trade Agreement (NAFTA); a strong over-regulation of forest activities that posses high transaction costs to legal forest production; the high opportunity costs of forest conservation favored by traditional subsidies to mountain agricultural and cattle raising, completely non-regulated and with high environmental; the extended presence of illegal logging in different regions and the inability to implement the law. Since the mid 1990 the establishment of restrictive protected areas became the main conservation strategy, in spite of their high social costs and often poor environmental gains (Merino and Hernández, 2004; Durán, Velásquez y Mass, 2005). Since the early nineties massive reforestation programs and subsidies to private companies for the establishment of commercial forest plantations became the predominant forest policies, getting repeatedly lower results than those proposed. Mean while communities coalitions, successful communities and supportive NGOs lobbied for alternative forest policies.

During the past decade numerous successful and un-successful community forestry experiences have been documented, mostly based case studies (Merino and Hernández, 2004; Durán, Velásquez and Mass, 2005). (Alatorre, 2000; Merino et.al., 1997; Klooster, 1997; Klooster and Masera 1997; Bray and Merino, 2004; Taylor 2005; Garibay 2004). Some of them have followed the theoretical perspective and the methodological approach of the International Program "Forest Resources and Institutions" of the universities of Indiana and Michigan, and led by Elinor Ostrom and Arun Agrawall (Merino, 2004). The questions these studies have addressed are varied: how sustainable community forestry is?, how does traditional organization of forest

communities relates to the entrepreneurial schemes that commercial forestry demands?, can community forestry contribute to local governance?, which is the ecological efficiency of community forestry compared with that of protected areas?, does community forestry contribute to local well being and development?, how does conflict affect community forestry? and does community forestry fed conflict?, which have been the impacts of public policies on the communal forest management?. In general terms the main theoretical and policy questions of the IFRI cases are related to the factors within communities that have a predominant weight in the success or failure of communities when they use and manage collectively a *common* resource, such as the forests (Ostrom, 1990).

IFRI aims to provide useful insights for forest users and also for policy design. It relies on the *Institutional Analysis and Development* (IAD) Framework perspective. IFRI central hypothesis propose that forest conditions and sustainable use depend on the robustness of the local institutions that communities use to govern their forest commons[x]. A second general hypothesis is that institutional strength depends on inter-linked characteristics of the user groups and their relation with the forest commons: their social capital, their uses and dependence on the forests, the recognized and claimed rights on forest resources, the incentives they face to enforce rules or to use forests in "open access" manners, the deficits of power and assets among community members and the existence of elite capture of benefits of the commons[xi].

IFRI studies sought to demonstrate that under favorable policy conditions and incentives structure, communities are efficient forest managers in environmental, economic, and social terms. These studies also aimed to make evident that policies that disregarded the roll local of communities had unexpected perverse impacts, and to advocate for careful and interdisciplinary crafting of forest and conservation policies.

During the second half of the 1990, the recently created Ministry of Environment and Natural Resources (SEMARNAP[xii]) launched a second generation of Pro-community forestry programs: the *Programa de Desarrollo Forestal* (PRODEFOR) and the

Programa de Conservación y Manejo Forestal (PROCYMAF). They were relatively marginal programs as commercial plantations, reforestation and protected areas received most of the institutional attention and funds. PROCYMAF was first a joint initiative of SEMARNAP and the World Bank. It was first conceived as a pilot project that pretended to craft fine-tuned strategies to respond to the diversity of Mexican forest communities. PROCYMAF design and implementation was influenced by the wave of progressive advocacy in favor of participatory, decentralized and pro-poor forest policies. This wave was a result of the recognition among the multilateral agencies of the failure of the projects that during the 1980 intended to halter tropical deforestation through the support of central governments.

PROCYMAF had an innovative working strategy, giving a differential treatment to communities with different conditions and levels of forestry development. The program was also clear about the need of a close presence and intense advisory to forest communities. The main goals of PROCYMAF were: the strength of communities´ productive and institutional capacities for sustainable and diversified forest use; the strength of communities assemblies as legitimate decision making bodies; the development of "bonding" social capital within forest communities, as well as "bridging" regional social capital among different communities in order to address shared problems and projects. Finally PROCYMAF promoted relations of transparency and accountability between the communities and the program. PROCYMAF worked initially in the southern state of Oaxaca, with a high indigenous presence, high presence of communal forests, an important group of successful community forestry experiences, and strong local governance traditions. Within the next years the program was extended to other five forest states.

4. The survey on the conditions of forest communities in Mexico.

IFRI case studies provided findings and insights that were used to develop some of PROCYMAF field projects and –part- of its training program. Nevertheless years latter

PROCYMAF growth and the mainstreaming of its lessons to the general forest policy required a wider perspective. Trying to address this demand we initiated a survey with statistically meaningful results, based on the IAD framework and on IFRI orientation. In 2007, with the support of PROCYMAF and the IFRI program, we developed and applied a questionnaire in communities that owned a minimum of 300 hectares of temperate forests[xiii] in five of the six states where the program worked[xiv]. Oaxaca, Guerrero, Michoacán, Jalisco and Durango[3] are five of the six main forest states in Mexico that together count for more of half of the forestland of the country and more than half of the timber produced. Considered as a whole these forest areas have lower population density and lower deforestation rates than the forests of central and eastern Mexico. In this sense we consider that the results of the survey show the conditions of the 50% of Mexican forests with lesser pressures on forests.

The themes of the survey are mostly those covered by IFRI, and others more specifically related to the Mexican community forestry experience: population and poverty, forest tenure, forests´ contribution to communities livelihoods, forest uses and forest products, vertical integration of forest production, local institutions for forest commons management, pressures on the forests, protection and conservation activities and communities organization and social capital[xv]

The hypothesis that guide the survey are consistent with those of IFRI:

i. *The rights to use and manage the forest create incentives for forest users to protect and preserve forest systems.*

ii. *Forest governance and sustainable management, demand collective action and have high transaction costs, recognition of local communities' rights is an important incentive for them to meet transaction costs.*

[3] The survey was not applied in Quintana Roo state with tropical rain forests, with very different ecological conditions, management practices and forest economy to those of temperate forest regions. We neither could apply the survey in the state of Chihuahua (the one with the larges forest area and the second forest producer in Mexico) where PROCYMAF did not work at the time of our fieldwork.

iii. *The development of community forestry strengthens local institutions and enable sustainable forest management and governance of the common goods.*

5. General results of the forest survey[xvi].

Collective Tenure

Governance of communal forests has undeniable high transaction costs and demands high levels of collective action. It also offers larger social benefits and favors higher social participation in forest protection than private property of forestlands.

E*jidos* –the type of collective property with less autonomy to define succession patterns is the predominant form[xvii] of tenure in forest Mexico, but *comuneros*[4] are the majority of collective property right holders in forest communities. This pattern is the result of the more inclusive nature of *comunidades agrarias* with more chances to include the youngster and renew their membership. *Ejidos* face more serious difficulties for generational replacement, as lack of access to property rights for young people acts as an expulsion factor. The survey data clearly show this difference: more than 88% of *ejidatarios* older than 40 years and 32.1% of *comuneros.* On the other side we found that 19% of the families living in the forest communities of our sample are *avecindados*, without property rights. They are often the poorest families within communities, with less incentives to take part in forest conservation.

Age groups among property right holders in forest communities	***Ejidos***	***Comunidades agrarias***
% of forest communities of the sample with the majority of right holders younger than 40 years	11.7%	67.4%
% of communities with the majority of right holders with ages between 60 and 40 years	60%	20.4%
% of communities with the majority of right holders older than 60 years	28.3%	11.7%

Source: Survey about the Conditions of Forest Communities in Mexico

[4] *Comuneros* are collective property right holders in *comunidades agrarias* as *ejidatarios* are in *ejidos.*

As a result of this age patter and of poverty conditions, access to schooling is remarkably low: 46% of *ejidatarios* and *comuneros* have not completed elementary school[5] and only 25% of them have post-elementary studies.

Communal tenure in Mexico has a strong presence in the countryside, in spite of the many pressures it faces, and after the privatization of *ejido* lands became legal in 1991. The tendency to maintain collective property is stronger in forest communities. Our data show that sells of *ejido* lands had taken place in 30% of our cases[xviii]. In more than 80% of our cases the interviewed communities´ representatives declared that nobody in their communities was interested in privatization of the *ejidos* and *comunidades.*

The most important pressures on collective property are those created by tenure conflicts among communities and within them: 34% of our cases face problems over borders with their neighbors, and 21% internal conflicts. Conflicts have negative impacts on forest governance, management and forest conditions. Local authorities declared that these conflicts impact forest conditions in about 50% of the cases where they are present, causing deforestation, illegal logging and forest fires. Frequently tenure conflicts impede the development of legal forest uses and forest management.

Families Livelihoods in Forest Communities

The results of the survey show a generalized picture of poverty, with predominance of traditional activities such as agriculture and cattle raising that produce low earnings and often have high impacts on natural resources.

Agriculture, mostly subsistence agriculture, is the most frequent productive activity, it is practiced by 75% of the families of the communities of our sample, and it is practiced in 98% of those communities. Corn is the main staple and in most cases it is produced for the households' self consumption. In spite of agriculture' s poor profitability, it allows families living in uncertain economic conditions, to cover some of their basic needs.

[5] Elementary school studies last six years in Mexico.

Cattle raising is also a frequent activity in forest communities, it is present in 84% of the communities of our sample, but it tends to be practiced by few: in the majority of the communities of the sample less than 25% of the families own cattle. The profits of cattle rising are also low. In 35% of our communities, cattle-raising provides less than 25% of the income of these families. Cattle raising is perceived as a form of "peasant saving", often at the expense of the forest commons whose costs are not considered in the cost-benefit analysis of those who own cattle.

The contribution of forestry to local employment and income is minimal, in spite of the productive potential of many forests and the strong need of economic options of forest communities. In nearly half of the communities (49%) nobody is engaged in any commercial forest use; in 23% of the communities *ejidatarios/comuneros* occupied in forestry are less than 25% of community members. Only in 6% of the communities those *ejidatarios/comuneros* who take part in forest activities are more than 50% of community members. The share of forest activities in local income is equally low: only in 11% of those communities with commercial forestry activities, those who occupied in forest activities get from their work more than 50% of their total yearly income.

Forest Uses

All the communities included in the sample have temperate forests[xix] ,many of them also have other types of forest vegetation, such as tropical rain forests and dry tropical forests, due to the varied altitudinal range of their lands. Different types of forest vegetation are used with different porpoises and managed in different ways. Forest resources are fundamentally sources of domestic goods. Firewood recollection takes place in 65% of the communal pine forests of our sample, in 45% of the fir forests, in 81% of the pine-oak forests, in 92% of the oak forests, in 41% of the cloud forests and in 61% or the tropical dry forests. Grassing is the second most important forest use, it occurs in 60% of the pine and pine-oak forests, and in 75% of the tropical dry and rain

tropical forests areas, with a particularly high bio-diversity. In most of the cases these two types of uses are non-regulated.

Commercial logging takes place in 58% of the communities of our sample that own pine forests, 62% have community conservation areas.

Pine-oak, areas are used for commercial logging in 48% of our cases with the pine-oak, 18% of the communities with pine-oak forest participate in the PSA Program.

There are community conservation areas in 70% of the communities' fir forests, 31% of them take part in the Program of Payment for Envinomental Services (PES) [xx].

Cloud forests, in Mexico are relictual ecosystems, rich in biodiversity and endemisms. There are community conservation areas of cloud forest in 80% of the communities of our sample with this type of forest vegetation. Agriculture is the second most important use of cloud forests where coffee is a frequent crop. The increase of subsidized coffee cultivation during the 1970 was the main responsible of the rapid disappearance of cloud forests in Mexico[xxi], 18% of our communities with cloud forests receive payments from the PES program.

The limited sustainable options of use for most of the oak, dry tropical and rain tropical forests posses serious treats for the conservation of Mexican biodiversity[xxii].

Indexes on the Conditions of Forest Communities.

In order to summarize the main results of the survey and the relations among variables, we built five index related with the main themes of our questionnaire: index of pressure on forest areas, index of protection and conservation activities, index of social organization and social capital, index of institutional development for forest use and management and index of community forestry development. The variables that make up these indexes are the following:

a. Index of Pressure on Forest Areas:

Illegal logging, Forest fires and pests, Grassing in forest areas and Deforestation.

b. Index of Protection and Conservation Activities:

Monitoring to prevent forest fires, forest pests, and illegal cutting; Forest Fires, forest pests and illegal cutting fighting practices and Community conservation areas.

c. Index of Social Organization and Social Capital:

Frequency of community meetings, Participation in community meetings, Strength of community governance systems, Participation in community governance and Voluntary work in favor of communities,

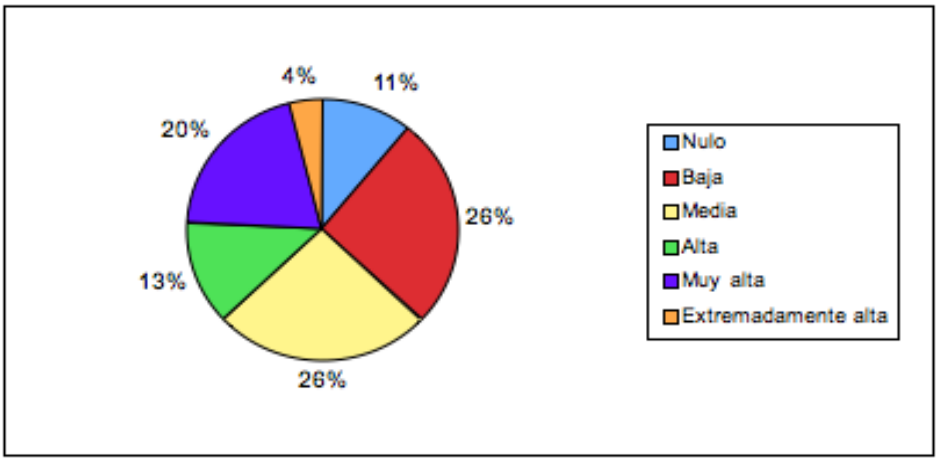
d. Index of Community Forestry:

Level of vertical integration forest production chains, Level of diversification of forest uses, Productive forest assets owned by communities and Financial assets.

e. Index Institutional Development for Forest Management and Use

Rules for forest protection and management, Rules of forest products harvest, Forest management plan, Rules for community governance and Local institutions' strength[xxiii]

a. Index of Forest Pressures on Forest Areas

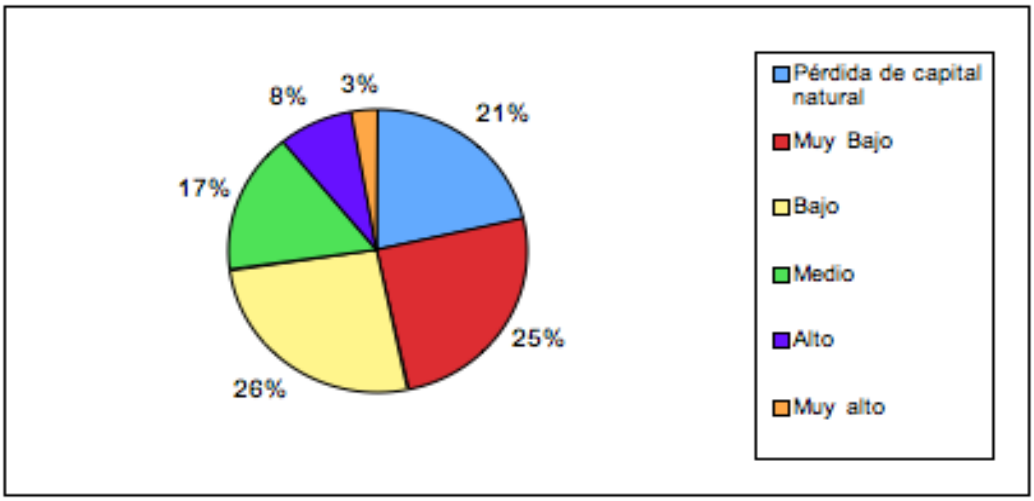


Source: Survey on the Conditions of Forest Communities in Mexico

This index shows a moderate level of pressure on community forest areas of the five states we consider, seen as a whole: 37% of the forests in our sample, face none or low pressures. These low values are related with two issues: on the one hand the possible sub-register of illegal logging in the field, on the other this pattern may be due to the fact that deforestation in many forest communities have diminished in the last

years as a result of emigration and agriculture abandon, lowering as a result, traditional pressures on forests[xxiv]. Nevertheless 63% of these forests face important pressures often related to grassing practices, fires and illegal cutting[xxv].

b. Index of Forest Protection and Conservation Activities.



Source: Survey on the Conditions of Forest Communities in Mexico

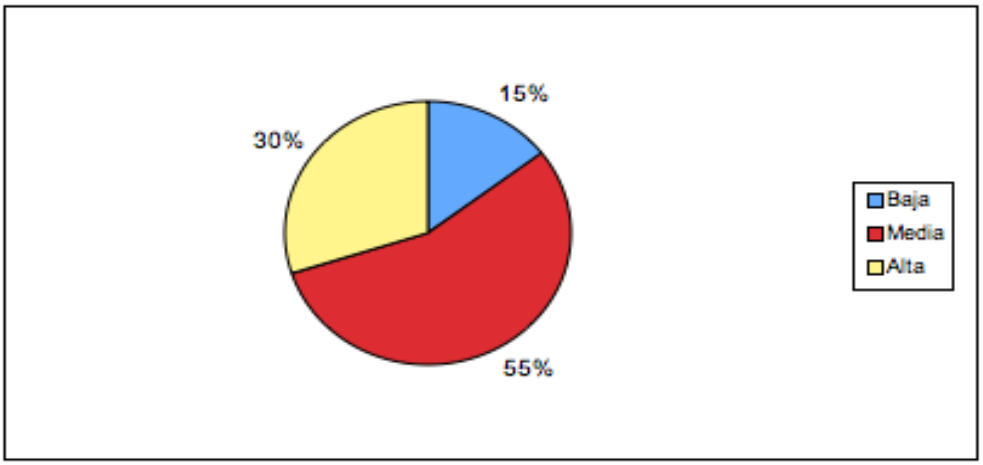
28% of these communities are intensively engaged in forest protection, monitoring their forests, fighting fires, pests and illegal logging. 11% of them have established local protected areas, based on the decision of community assemblies.

Most communities practice protection activities only at levels that we consider as “low and very low”. These practices mostly refer to monitoring and forest fires fighting. An important share of the communities (21%) reported recent forest losses. Protection practices in these last communities are very fable or none existent. The proportion of communities with forest losses in this index is very similar to the proportion of communities with “very high and extremely high” levels of pressures on the forests.

c. Index of Organization and Social Capital

The data of the survey clearly show that Mexican forest communities have an important organizational base. We consider organization as “medium” in 55% of the cases, and “high” in 30% of them. These results show that in many cases community governance,

based mostly in local participation is still in place: assemblies of *comuneros/ejidatarios* meet regularly and frequently to discuss collective issues and make decisions and rules about the use of the commons, their relations with governmental programs and other local governance issues. Assemblies have an important attendance and participation of *ejidatarios/comuneros,* those community members with decision-making rights. Voluntary work still takes place and serves as the base for the development and maintenance of communities' infrastructure and public services, but often for forest protection and restoration activities too.



Source: Survey on the Conditions of Forest Communities in Mexico

It is also to be said that social organization in *ejidos* and *agrarian communities* face a variety of problems, such as the marginalization of young people in *ejidos* and marginalization of women in both *ejidos and communities agrarias.* There are also frequent conflicts related with "elite capture" of the benefits of common resources use. In addition migration puts social organization under new stress as it affects generational replacement. These pressures are particularly strong for communities within the 15% of our sample, where local governance structure is loosing viability, and people invest less effort in the common wellbeing.

Our results report no communities with "very low or none" organization. This may reflect the non-viability of communities with absolute absence of collective action and social capital. On the other hand there are neither communities with "very high" social

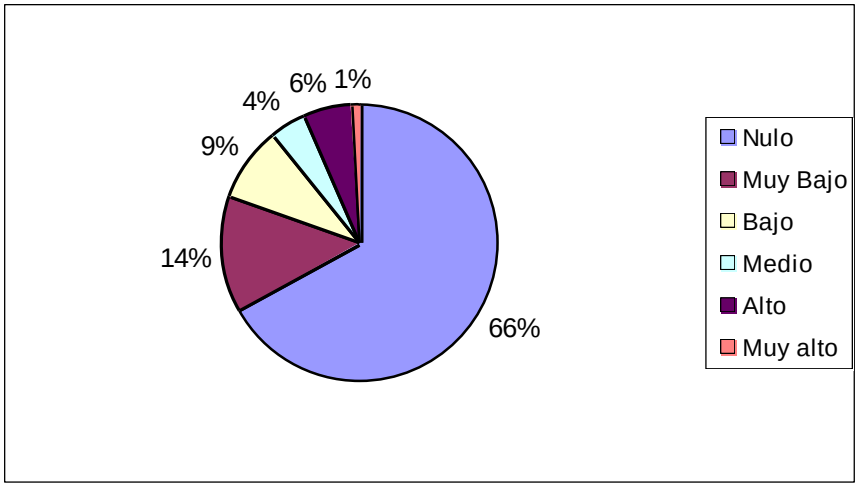
organization. This absence on its turn may be a result of the high costs of the maintenance of communities' and common forests governance, and the need of very high incentives to maintain them. These high incentives tend to be limited in the context of poor development of communal forestry[xxvi]. Forests used for domestic consumption, the largely predominant forest use in Mexico also provide incentives for conservation, nevertheless as market relations are deeply enrooted in every day life of Mexican communities, economic incentives and community business are a strong drivers for collective action and local institutional development. On its turn community forestry development requires social capital and institutional strength, and when successful, favors their growth.

d. Index of Community Forestry Development.

Commercial forestry is absent in the vast majority of our communities (66%) in spite of the ownership of forest assets. In 14% of the communities these activities are seldom practiced and have a low contribution to local economies. Most of the communities of this second type sell or have sent timber as a stump, but have not developed local productive capacities (acquisition of machinery, productive infrastructure development, trained work force, marketing capacities). Forest extraction under these conditions often creates high impacts on the forests.

Community forestry as described in the third section of this work, takes place in 20% of the cases. All these communities manage their forests, and control extraction processes, 13% sell timber as logs. Communities have invested the development of productive capacities, but they are still limited, any of these last communities have the resources needed to finance forest production costs through the year, relying in timber buyers to do so.

7% of the sample have forest industries, selling tables and in some cases, forest products with higher value added. About half of the communities within this last



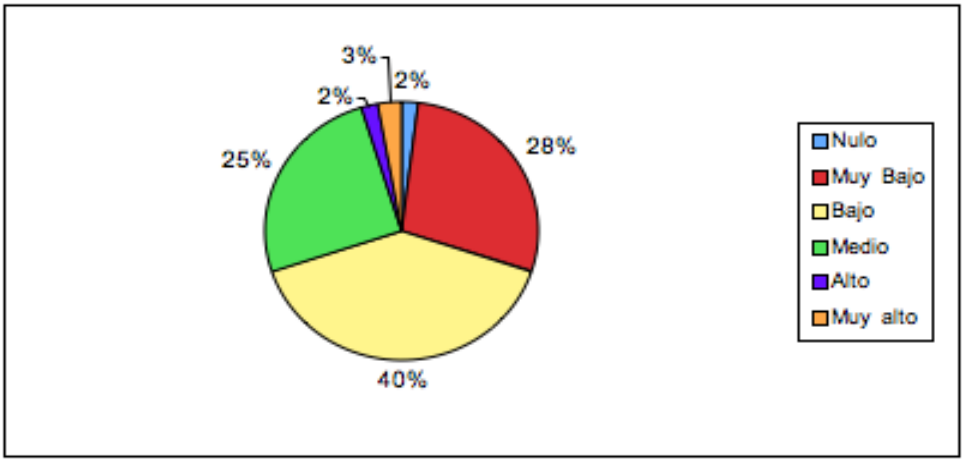
category have diversified forest uses. Together with timber they extract and sell resin, water[xxvii] and provide eco-tourism services, creating local sources of employment and

Source: Survey on the Conditions of Forest Communities in Mexico

income. Logging remains as the most important forest activity that often finances the development of new forest activities (Antinory, 2000). Certified communities are part of this group.

e. Index Institutional strength about Forest Use and Management

We understand local institutionality as the presence of rules in use for the governance of communities and their forest assets. Strong local institutions are key for sustainability. In order to assess communities' institutions' strength we have considered the presence of rules for forest use and management[6], rules enforcement, monitoring, sanctioning and mechanisms for conflict resolution.



Source: Survey on the Conditions of Forest Communities in Mexico

[6] According with the level of forestry development in different communities.

Local institutions for forest use are poorly developed in 70% of the cases. Institutional strength is moderate in 25% of them and high and very high in just 5% of these communities. The most common type of local institutions are those related to the enforcement of communities' governance rules: the obligations to attend assemblies, to take part in local governance activities and in collective work in favor of communities.

The low values of this index relate to the low level of forest uses, and the consequently low incentives for communities to invest in institutional offer[xxviii]. The communities with the highest institutional strength are those with more developed and diversified forest economies. In such cases, institutional development refers not only to rules crafted around sustainable harvest of different resources, but also favors rules enforcement around land use planning and local governance.

f. Comparisons and relations among different indexes

	Forestry development	Institutional strength	Organization strength	Forest protection	Pressures on forests
Very high	1% of communities	3%		3%	4%
High	6%	2%	30%	8%	20%
Medium	4%	25%	55%	17%	13%
Low	9%	40%	15%	27%	26%
Very low	14%	28%		25%	26%
None	66%	2%		21%[7]	11%

Source: Survey on the Conditions of Forest Communities in Mexico

As mentioned above, the low level of development of forest activities in communities whose main productive assets are collective forests is one of the most striking features of Mexico' s forest regions. Institutional development is also low but the vales of this index are higher than those of the level of forestry development. There very few communities with no local institutions (2%), while 66% of the communities have no

[7] The "none conservation practices" corresponds to these communities where we found recent forest losses.

forestry development. Those communities with low very low institutionality and some of those with a low one, tend to be communities with rules around local governance and domestic forest use. The values of the indexes of forestry development and institutional strength have a closer relation in the higher levels: backing up of our hypothesis that in Mexican forest regions, the development of forestry provides strong incentives for local institutional development, but also relies on it.

The values of organizational strength in many communities –specially for communities with a "medium level of organization" have a considerable level of independence from forestry development. The level of organization is higher than the level of institutional development. Governance structure, and willingness to take part on it -covering the related *transaction costs*- is in place even when its not fully backed by local institutional to support. *In other words there is a local "institutional gap" to support existence organization and social capital present in forest communities.*

One of our main hypothesis regards forest protection and pressures on the forests as "dependant variables" in relation with community forestry, local institutions and organization. Our data show no linear relation between forest protection and forestry development. As a general tendency forest protection practices are more frequent than those experiences of forestry development, at least for the basic protection measures. This tendency may reflect the fact that forest products used for domestic consumption sustain a basic level of forest protection, but does not enable communities to invest more effort in a more detailed institutional crafting, intense monitoring system and/or more costly conservation measures such as the segregation of community protected areas in their lands. The percentage of communities with the three highest levels of protection/conservation practices (28%) of the sample is also higher than that of the communities with the three highest levels of forestry development (11%), showing –from our perspective- that in the present of proper incentives, even when they are not very high- communities tend to make important investments in forest protection and conservation, developing capacities to do so. These practices often include:

conservation areas, management of seedling areas, forest studies to base management practices, biodiversity protection and forest certification[xxix].

6. Main challenges, policy failures and conclusions .

Data from a recent study on the performance of forestry and forest policy during the 1990 and 2000 (Merino and Ortiz, 2008) showed two clear tendencies: from 1994 to 2000, forest production grew by 49%, (from 6.3 million m3 of round wood to 9.4 m3r), five years latter in 2005, timber production had dropped to the level it had in 1994. This loss of 33% of the wood production in 2000, occurred in the middle of a considerable increase of the national consumption of forest products, that grew from 16.3 million m3r in 2000 to 27.5 in 2003 and 21.3 in 2005. As a consequence the deficit of forest products increased in volume and value: in those five years the volume of the deficit increased by 167% and its value grew by 222%, in spite of the relative monetary stability during this period[xxx].

The data on the performance of the forest sector during 2000-2005 reflect an important loss of communities' capacities to produce row materials and add value to their products. The low levels of forest production and productivity in Mexico, contrasts with those of the main commercial partners of the country: the United States -whose conservation policy has been adopted as a paradigm for forest conservation- has a forest land four times larger than Mexico´ s and produces 50 times more timber, which mostly comes from natural forests. Chile –whose forest area is a third of Mexico´ s and has an important share in Mexico' forest imports- produce three times more wood.

Mexican legal framework provides important advantages for sustainable community forestry: the recognition of communal forest tenure is set by the country´ s General Constitution since 1917. More recently the last forest law (2003) has formally recognized the public value of community forest management and the need of governmental support to sustain it; the promotion of schemes of payment for forest environmental services; and the importance of forest certification.

Nevertheless it is worth to remark that the rapid deterioration of forest production capacities has occurred during a period of remarkable growth of the public investment in the forest sector. There are different institutional and programmatic causes for the poor results of this important public effort. In general these results are a consequence of a simplified diagnostic of the complex problems of forest regions that translate in partial and biased policy answers.

Among the institutional factors those with the most pervasive impacts are: (i) The marked concentration of forests governance powers in the federal government. (ii) The incoherence between the regulatory policies that drastically limit forest uses, and the important public investments in the forest sector. (iii) Forest institutions insufficient human resources. (iv) The failure of monitoring and sanctioning of illegal forest activities that creates a wide impunity of forest illicit simultaneous with the increasing costs of legal producers and the absence of market mechanisms that allow consumers to recognize and favor legally produced forest goods. (v) The increasing extension of governmental protected areas, where communities loss property rights and incentives to engage in forest protection, and open access conditions tend to prevail. Up to date, in spite of deterioration and un-governability in many forest regions, there are not institutional efforts from the responsible agencies: CONAFOR, SEMARNAT, PROFEPA or CONANP[xxxi], that openly recognize and address these policy failures.

From 2000 up to date, CONAFOR the federal agency responsible to promote forest sustainability, has had different programs: Conservation and Reforestation, Commercial Forest Plantations, Plant Production, Payment for Environmental Services, Forest Development, the Program of combat of Forest Fires, Program of Community Conservation and Forest Management and the program of Indigenous Biodiversity Conservation. From 2000 to 2002 the budget of these programs increased by 411% and maintained a constant growth rate during the last federal administration. In 2007 the new federal government increased the budget of CONAFOR by 108%. The analysis of the distribution of this budget provides some of the reasons of policy

failures: 60% of the resources have been invested in reforestation and plantations based mostly in top down approaches, without poor or none attention to the development of planning, management, administrative and productive local capacities[xxxii].

The survey results reflect the generalized poverty and marginality present in forest regions, and the reduced productive options compatible with the conservation of the forest cover. In this context of limited experience, incentives and options, training and advisory are critical needs of today´ s fragile forest communities. Without the investment in local capacities, public investment in forest restoration and conservation loss viability. The successful communities' and policy experiences show that close and high quality advisory and training have been key factors for success (Merino et.al, 2007; Bray, Merino 2004; Alatorre 1991; Merino, 2004).

Another key "lesson learnt" is the need of collective action for sustainable forest management. Forests "behave" as commons, their sustained management requires high levels of cooperation among relevant social actors[xxxiii]. In addition the majority of forests in Mexico are under collective property. Local organization as well as community and regional social capital are also fundamental to forest sustainability, when they are presence collective property becomes a powerful advantage for conservation and not a liability.

During the period 2000-2006 only two programs, PROCYMAF and COINBIO oriented their efforts in favor of the development of local institutional, organizational and productive capacities. In spite of their achievements, and the World Bank' s recognition of PROCYMAF as one of the Bank' s most successful community programs they received less than 5% of CONAFOR' s budget all through the past federal administration.

In December 2007 in the United Nations Conference on Climate Change, Mexican government adopted the commitment to plant trees in 500 thousand hectares per year. Massive reforestation –already favored in the past in spite of constant failures- became

a presidential goal, with resources multiplied by various fold. In 2008 Green Peace denounced that reforestation survival was less than 25%.

The results of the survey express some of the main challenges faced today by social sustainable forest management schemes: (1) Right holders in the majority of *ejidos* are ageing, generational replacement required for forest protection and communities entrepreneurial ship is under treat in the majority of forest communities. (2) Tenure conflicts are frequent and have pervasive impacts on local peace and on forest areas. (3) Poverty is widespread, economic options of forest population are poor and often non compatible with the conservation of the forest cover. This is particularly true for those forest ecosystems with the highest biodiversity. (4) There are few incentives to sustain and develop local institutions. (5) Hardly developed community forestry experiences are loosing productive capacities, becoming lesser able to compete in today' s open markets. Up to now most of these challenges are not addressed by any public program. Those that have tried to support local institutional and productive development are marginal in financial and political terms.

Social organization has not been fully perceived as a key resource by main-stream forest and environmental policies, on the contrary, community organization has often suffered negative impacts of policies that mis-regard the nature of common goods and collective property of forest resources in Mexico, and the potential advantage of groups with communal social capital for sustainable forest governance. Our results show that the communities with stronger organization are also those with the more intense practice of protection and conservation activities.

Communities with developed and successful forestry experiences are only a low percentage within the universe of forest communities, but their presence and success express the viability of community forestry as a driver of local economy in forest regions.

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[i] 10% of the plant species of the world are present in Mexico. The country is also one of the main sites of origin and diversification of important forest genus such as *pinus and quercus,* and a reserve of their genetic diversity.

[ii] These are the two administration of the conservative Parted de Acción Nacional (PAN) that came into power alter 75 years of rule of the old official party the Partido Revolucionario Institucional (PRI).

[iii] Up to now species with commercial value in the national marked are mostly limited to timber of coniferous

[iv] The rest of the forest is mainly in private hands.

[v] From 1993 to 2007, the "Programa de Certificación de Derechos Ejidales" certified property rights of *ejidos,* defining their limits. It also certified individual property rights over agricultural plots in those *ejidos* that agreed to do so. PROCEDE only worked with *comunidades agrarias* in a second phase and only defined the borders of *agrarian communities*i. In 2007 when this program closed, 41% of the collective lands, mostly *comunidades agrarias* remained uncertified (Procuraduría Agraria, 2007), the majority of this lands are property of forest communities. They are are not included in the ciphers of the Registro Agrario Nacional (RAN).

[vi] All solicitors of land were registered as members of the official party, the *Partido Revolucionario Institucional (PRI)* that remained in power for more than 70 years. Most of the times *campesino* members of the PRI were not aware of their membership. As party members they permanently voted in favor of the PRI in all the elections.

[vii] That later became the Agrarian Ministry.

[viii] Some of the most significant impacts of forest concessionaries´ activities were the reduction of the volumes of the tree species of highest commercial value and from this perspective impoverished the forest genetic stock.

[ix] Canada and the United States –Mexico' s partners in the NAFTA are the two main forest producers in the World, their forest production often benefit from different subsidies, they have strong forest industries and government bodies. Mexican community producers -with a short experience in the forest business, with frequently deteriorated resources, with no coherent policy support, and with strong barriers to access credit, have found hard to compete with their closest commercial partners and with other forest counties as Chile with whom Mexico has also signed trade agreements.

[x] In this theoretical corpus the term "institutions" is used to designate, "rules in used" repeated patterns of behavior that individuals use in particular situations, and get institutionalized.

[xi] "IFRI scholars created a standardized methodology for field work based on approximately 700 questions in 10 forms. The data collected in the field are fed into a relational database (where multiple data base co-exist in logical relation to one another to capture data at different units and scales)" Wollengberg, Eva, et.al., 2007.

[xii] SEMARNAP was created in 1994.

[xiii] 300 hectares are considered as the minimum forest extension for viable commercial forestry.

[xiv] The sample was built following a simple stratified random sampling method and has sample size 103 forest communities, a 90% confidence level and a 7% sampling error.

[xv] The questionnaire has 350 questions and was tested in 20 pilot cases. Due to the size of the sample and the costs of the fieldwork, the survey was only applied to the communities authorities *(comisariados)*, but always to a group of at least three people.

[xvi] The data we present in this section are only the result of the descriptive statistical analysis. Inferential analysis still needs to be developed to find meaningful relations among variables and fully test our hypothesis. Nevertheless the descriptive analysis gives an interesting and varied perspective of the conditions of Mexican forest communities.

[xvii] *Ejidos* are predominant in terms of their share of the national forest extension and also by the number.

[xviii] These are sales of some plots, frequently among inhabitants of *ejidos,* in most cases they are not privatization of the whole *ejido* lands and *ejido*' disappearance. They neither include sales of forestlands. Sales of the lands of *comunidades agrarias* are illegal, their assemblies need to decide to become *ejidos* before selling their lands.

[xix] Temperate forests include: pine, pine-oak, oak and cloud forests.

[xx] This Program was established in 2001 by CONAFOR with support of the World Bank, it pays yearly rents to forest owners whose properties –or part of them- take part in the program,. Any activities other than those related to forest protection, are prohibited in these areas, while owners receive these payments.

[xxi] Since 1990 many communities in southern Mexico practice shade coffee cultivation, maintaining the forest cover and getting certification as organic-sustainable producers. This was not the case in the 1970 and 1980 when sun-coffee cultivation, based on forest removal was promoted by government programs.

[xxii] Endemic species are classified as paleo-endemisms and neo-endemisms. Cloud forests in México are those with the highest level of paleo-endemisms, dry forests and arid vegetation areas are the richest in neo-endemisms.

[xxiii] In order to asses the strength of local institutions we considered Ostrom' s principles of institutional robustness: limits of the resource, collective choice, coherence, monitoring, conflict resolution, graduated sanctions, user groups autonomy to organize and make rules.

[xxiv] In some cases the abandon of agriculture has stopped forest clearings, but it is also related with the lower numbers of forest fires, as frequently mountain agriculture was based on slash and burn practices.

[xxv] It should be remembered that the sample of forest communities is representative of the half of the country' s forestland currently, under less pressures.

[xxvii] Some communities collect water from water sources in the forests, and bottle it in plants installed in communities.

[xxviii] The development of sustainable institutions is a demanding process with high transaction costs.

[xxix] The Forest Stewardship Council has certified around 800,000 forest hectares, corresponding to 28 Communities. The number of certified communities has not growth due to the absence of the expected market incentives for certified forest products, and the high costs of forest certification.

[xxx] From 2000 to 2005 the Mexican currency, the peso, lost only 10% of its 2000 value in relation to the American dollar.

[xxxi] SEMARNAT is the Secretaria de Medio Ambiente y Recursos Naturales, CONAFOR is a part of SEMARNAT, but works with a considerable margin of autonomy, including an independent budget.

SEMARNAT is directly responsible for the logging permits. The production of information on forests is another responsibility of SEMARNAT. PROFEPA is the Procuraduria Federal de Proteccion Ambiental, is responsible for the monitoring of forest areas. CONANP is the Comision Nacional de Areas Naturales Protegidas.

[xxxii] Reforestation survival has been estimated in a range of 10% to 15% commercial plantations have similar results.

[xxxiii] In terms of Natural Resources Economy forests are "common pool" goods. Their sustained use rellies on cooperation because it is difficult to exclude potential users, while the use made by some users affects the resource and other users' future use.