New Interdisciplinary Research on Mexico's Common Property Forests: A National Survey

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ABSTRACT

Efforts to develop strategies coordinating federal forest policy objectives with local governance institutions in Mexico have met with major obstacles. Federal forestry projects, including *Programa de Desarrollo Forestal* in the seventies and *Proyecto de Conservación y Manejo Sustentable de Recursos Forestales* (PROCYMAF) currently, have focused on improving state, private and community sectors' capacity to implement forestry management activities that incorporate environmental, industrial and economic development goals. Repeatedly, program officers found that timber production permit data were inconsistently recorded or difficult to access or did not exist. Pursuant to these efforts, some state delegations of the responsible federal agency, *Secretaría de Medio Ambiente y Recursos Naturales* (SEMARNAT), have revamped their databases, but in extending projects across states, PROCYMAF has continually encountered a serious lack of this basic information. The result is that the level and scope of community timber production and forest use patterns are unknown.

To fill this gap, an interdisciplinary team of researchers has coordinated the project National Survey of Community Forests of Mexico. The effort is housed at the Centro de Investigación y Docencia Económica in Mexico City, in collaboration with PROCYMAF (as part of Comisión Nacional Forestal (CONAFOR)), the Universidad Nacional Autónoma de México, Florida International University, and the University of California, Berkeley.

The project involves two phases of field research: 1) construction of a database of *ejidos* and indigenous communities with logging permits in ten major timber-producing states and 2) survey of a random stratified sample of *ejidos* and indigenous communities with logging permits in these ten states as well as forest *ejidos* and communities with no official extraction activities. The states are Chihuahua, Durango, Jalisco, Guerrero, Oaxaca, Michoacan, Campeche, Quintana Roo, Chiapas, and Puebla. The first phase collects key statistics to provide basic information and inform the design of a new SEMARNAT permit database. Phase 1 results lay the groundwork for the second phase of the project, which entails in-depth surveys in communities to answer key questions on industrial organization, community objectives, local governance and impact of community forestry. Overall, the project results will inform forest policies in technical assistance, conservation, payments for environmental services, training and design of other government programs, as well as contribute to the academic literature on land use

and common property resource management.

The paper presents work to date on Phase 1 of the project. The paper begins with issues raised during the collection of data. We will then present a comparative analysis across the ten forest states, including data on number of communities in which logging permits are held, a typology of community integration along the production chain of wood products, total hectares and total forested hectares, number of technical forestry service providers, nontimber forest product permits, type, level and ownership status of capital equipment used in timber production, real and actual processing capacity, degree of local control over extraction and processing activities through community member personnel, and trends in forest cover. The paper is the most comprehensive statement to date of the presence of community forestry activities in Mexico. We conclude by suggesting recommendations for policy and research.

Introduction

The demand for effective strategies for conserving natural forests while also using them for poverty alleviation and economic growth by local populations has never been greater. At the same time, governments are increasingly devolving control over forests to local communities. These efforts range from the co-management schemes in India and Nepal, where communities are given management responsibilities over adjacent government lands, to the situation in Mexico where agrarian reforms stemming from the Mexican Revolution gave communities direct ownership over the majority the nation's forest lands. White and Martin (2002) estimate that local communities now legally own or manage about one-quarter of developing countries' forests and 11% of global forests.

However, as governments have become convinced that devolution of control is an effective way to restore or conserve forest resources, new research puts in doubt the early hopes that some forest products would be platforms for economic development. This raises urgent questions as to what will be the economic and ecological impacts of such devolution. There has recently been pessimism about the potential of non-timber forest products in general to achieve anything other than existing and minimalist "safety net" function for poor rural peoples (Wunder 2001). It has been suggested that timber

production by local communities may be an exception that can produce new rent for local communities, but the examples of this are thought to be so few that researchers have offered this as a speculation (Wunder 2001).

Mexico represents one end of a continuum of community control over forest resources (Bray *et al* in press). Because of the Mexican Revolution, most forests in the country were adjudicated to local communities in an erratic succession of policy trends from the 1920s to the 1990s, although over 50% of land transfers took place between 1950 and 1980 (Klooster 2003). However, due to paternalistic policies of logging concessions, communities also had to launch a series of protests over many years to gain effective control over their forests and to begin to launch community forest enterprises (CFEs) to take advantage of the forests highest value product.

Until recently, Mexican community forestry was little known in the literature. Early publications sketched in some of the history and policy shifts that produced the world's largest community forest sector and began to develop case studies of some of the successful experiences (Bray 1991; Bray, Merino *et al* 1993; Gonzalez 1993; Chapela 1994). In the late 1990s, a second wave of studies deepened knowledge of the sector by further developing cases studies and comparisons (Merino 1997, Alatorre Frenk 2000, Bray 1995) showing that while some communities had progressed through various stages of vertical integration to achieve diversified industries that would eventually compete in export markets to others that were mired in corruption and forest degradation by outside loggers (IBRD 1995, Klooster (forthcoming), Alatorre Frenk 2000, Merino 2002)

More recently, a new wave of quantitative studies and more detailed economic and ecological studies have shown the potential for community timber production under certain conditions to make significant contributions to economic development while not degrading forest. Consider:

- In a survey of 42 Oaxacan communities with forestry operations, communities with advanced forestry operations like sawmills were more likely to have

community level nontimber production activities, and almost 100% contributed timber revenue to social services and public goods (Antinori 2000).

- Bray et al (2003) show that the community-managed region of central Quintana Roo has one of the lowest reported deforestation rate for any region of southeastern Mexico.
- Duran *et al* (in press) show that community-managed forests in central Quintana Roo and Guerrero have similar deforestation rates to Mexican protected areas, and they argue that protected areas have a much higher cost to society.
- Wilshusen (2003a, 2003b) shows how the micropolitics of community forestry affect "social capital" and how emerging forms of labor organization in community-managed forests creates a form of futures markets in timber.

However, despite this rapidly expanding knowledge base some of the most important facts about community forestry in Mexico were still unknown. For example, it was not known exactly how many CFEs exist in Mexico, the extent of participation in the market, their processing capabilities, the amount of forest land they represent and contribution to national production of timber. In addition, little is known of their internal governance characteristics and their organization for production.

To answer these basic questions the authors have launched a two-phase investigation of forest communities in Mexico legally engaged in the commercial production of timber or which have forest land with potential commercial viability but with no management plan or logging activities. Phase One of the project constructs a database of communities with logging permits in ten of the most forested states in Mexico. It develops a basic profile of communal land ownership of forest land, that is, the number of hectares covered, tree species, authorized harvest levels, population and level of economic marginalization as defined by government sources. The Phase 1 data represents a significant step forward in knowing the scope of community forestry in Mexico and sets the stage for further research. Towards that end, the database will serve as a design frame for future data collection by SEMARNAT delegations and a sample frame that permits transition into the second phase of the research where we will conduct

on-site community surveys. Using the Phase One database to draw a random sample of communities with and without logging permits, primary data will be collected on internal governance, production, socioeconomic factors and ecological characteristics.

This paper proceeds as follows. The next section describes the background and history that leads to a specific meaning of community forestry in Mexico which we use to frame our study. The following section outlines the methodology for developing the database. The third section presents the data collected to date, mainly from six of the ten states in the project. A final section concludes.

Identifying Community Forestry

Mexico has developed such a large and diversified universe of forest production communities that to approach it nationally, it is important to understand the basic land ownership structure within Mexico and the variations in production organization within communities with logging activities.

The Mexican Constitution of 1917 created the possibility of two unique forms of common property designed to guard against the exploitative *hacienda*, large landholding system that motivated the Mexican Revolution. Those two forms are the *ejidos* and *comunidades,* which have come to cover about half of the national territory. These are forms of corporate communities with a defined membership and specified land territory, although there are many instances where the exact boundaries are in dispute. The *ejidos* and *comunidades* have a similar civic governance structure in which members convene in the General Assembly to vote on major decisions affecting the community. Article 27 of the Constitution contains the bylaws for convening, membership and scope of responsibility of local officials who are elected about every three years.

Another form of communal property is the agricultural colony or *colonia agricola* created around the 1940's to allow occupation of vacant lands. Many members of the

colonies are devoted to raising cattle which has led to significant forest clearing since *colonia* inception. They form a much smaller fraction of national territory but are nevertheless community governance systems mirroring the ejido and comunidad structure.

A brief note on use of terminology is in order. The literal translation of "*comunidades*" is "communities" but in Mexico it is understood to mean indigenous communities with demonstrated long occupation of the land, in contrast to *ejidos* which are based on a group's new claim to land redistributed from breaking up the large landholding *hacienda* system. Hereafter, when we are referring to the specific Mexican agrarian category we will use the Spanish term *comunidades.* When we use the term "communities" in English, we are referring to *ejidos* and *comunidades* and *colonias* as a general category.

Land in all three categories is held in trust by the community, where the community has the right to use the land, that is, usufructory rights. The community has title to the land, with little fear of state confiscation. However, it was the state's ultimate legal right to land that allowed the federal government to lease communal property to semi-private companies in the forties. Companies were instructed to negotiate contracts with communities to extract their timber resources, which communities could refuse. However, communities were only allowed to sell exclusively to these companies, and most settled on a contract with the parastatal. The agrarian reforms of 1992 allow privatization of individually harvested plots of land, but communal lands, especially forest lands, are not subject to the 1992 reform laws, thus leaving communal forestland intact for the foreseeable future.

Our efforts are to identify and analyze the characteristics of the community sector as represented by the *ejidos, comunidades* and *colonias*. Within these communities are yet more variations of production organization. Timber production occurs in the majority of cases at the community level. Alternatively, subgroups may form instead within the community as work groups who can organize legally to extract and market timber.

Communities or work groups within communities may organize into legal entities called *sociedades* or *unidades* under Mexican law. Forest land can also be divided among individual community members (in a usufructory sense), so that forestland is parceled even where production may occur at a collective level under one management plan. Our data encompasses all these variations within term "community forestry". Our first step in this project identifies community forestry based on a simple assessment of the land tenure status as officially recognized by the Mexican state, which itself is unique in having advanced one of the largest systems of communal land tenure in the world. Communal status is therefore recognized at a formal level, somewhat simplifying our initial steps while raising a host of new issues. In this case, we speak of a community as a legal entity that largely overlaps with the idea of a community of space. For example, we will also collect information on community residents who are not official members, as it is possible to live in the community as an *avecindado* or *posesionario* without having full community membership rights.

Methodology

Phase One of the project constructs a database of communities with logging permits for the harvest year 2001-2002 in the ten states of Chihuahua, Durango, Jalisco, Michoacan, Guerrero, Michoacan, Oaxaca, Puebla, Campeche, Quintana Roo and Chiapas. These ten states represent the most significant holdings of Mexico's forest land and extensive although varying community involvement in timber production. Thus, this focus reduces the expenses that would be incurred in collecting this information on all states.

As a comprehensive accounting for Mexico's community forestry enterprises does not exist at the national level, the first step in Phase One was the aggregation of logging permit data at the SEMARNAT state delegation level and review of forest management plans filed with the delegation. The SEMARNAT data covers varying years but primarily 1990-2002. This data includes a standardized format for recording basic

information on communities with logging permits, such as tenancy status of the parcel (private, *comunidad, ejidal*, colonial), forested hectares, commercially-viable forest hectares, authorized volume by species, and silvicultural practice used.

A separate interview with the professional forester responsible for each community holding a logging permit was conducted to identify ownership over extraction and processing equipment and capacity, and describe the basic organizational structure of the community forestry operations. Much of this forester-sourced information will be verified in the field in Phase Two and with third parties.

Consultation of RAN and INEGI Census and forest inventory data will provide total *ejido* population and total community land area. This part of the project envisions incorporation of 2001 National Land-Use Inventory (Inventario Forestal), which includes remote sensing information of land use, to complement the logging permit database and identify communities with forest resources but no commercial production. Communities with commercially viable forest cover but no commercial production will be identified from cross-tabulating RAN and INEGI GIS databases.

As with any large survey effort, data collection is not necessarily a straightforward process. The field researchers encountered a number of obstacles in recording the information envisioned by the study in this Phase, although the data came from secondary governmental sources. Some of the more pertinent issues are:

- There are no common standards in recording permit data across the state delegations of SEMARNAT. Often, each delegation's information depends on the individual governmental official who is responsible for acquiring and recording the statistics. In addition, the data recorded may be captured either in a computer file or by handwritten notes.
- The forested land area covered by the permit is often recorded since the permit applies to this area. However, broader values, like the total land area or total forested acreage of the owner's parcel are often not recorded.

- Information on volumes actually extracted as opposed to authorized volumes rarely existed.
- Field researchers on occasions encountered resistance of local government officials in providing information.
- Coordinates and names of communities are inconsistently recorded, adding to the complexity of sorting permit data.

These are some of the challenges faced by the field teams in collecting the data. The team made accommodations and sought various sources of information to provide as complete a picture as possible of the community sector short of visiting the communities themselves. These issues are likely to be encountered in future research efforts on Mexican community forestry, and Mexico's forestry industry in general, suggesting a need for more standardized forms of permitting across states to facilitate policy research.

Presentation of Data

Table 1 (all tables at the end) shows the preliminary results of consulting SEMARNAT databases specifically in ten states mentioned above, in addition to personal consultations in other SEMARNAT offices. These estimates place the number of communities which have held logging permits between 1990 and the present at 1,930. This includes communities with permits that are in force or suspended as well as permits for regular harvesting schedules as well as those seeking permission for a one-time extraction, such as clearing after a fire or storm. This means that about 7% of Mexico's 28,000 agrarian communities have some experience with forestry. The largest states in Mexico, Durango and Chihuahua have correspondingly the highest number of forestry ejidos and comunidades, with Michoacan a close third.

Pine and oak are the primary species sold in most states except in the tropical forests of Quintana Roo, where logging permits mostly cover tropical hardwoods and softwoods and cedar. Permits for oak are given often for the purpose of allowing

individuals to collect fuelwood under a sanctioned management plan. The oak may be consumed as fuelwood or transformed into charcoal. Pine on the other hand is usually transformed into finished products or building materials.

Tables 2 and 3 provide data on six states included in the national survey project. In these states, common property forests account for 18% to 80% of permits issued. Forestry in Quintana Roo takes place mainly under communal tenure while Chihuahua has the highest percentage of individual, privately held parcels under permit.

The breakdown by number of hectares represented by the logging permits shows another view of land tenure under forestry. While we do not have complete data on all areas under permit, the available data shows a clear trend that we expect to be validated once we have all the data compiled. Looking at the last two columns for land area authorized for harvest operations where we have the most complete set of data, most of this area is communal property. The percentage of communal land where harvests are authorized is 78% of the total authorized land area, with 32% of the permits, close to the 80% figure often cited in the literature. It is possible that once we assess total forested land area, regardless if it is under permit, the percentage of communal forest land holdings in Mexico's forests will be higher, depending on the amount of private forested land not yet inventoried. However, private owners seeking permits tend to have much smaller parcels on average than community holdings. In addition, if private owners are less constrained in engaging in forestry activity than communities, the likelihood increases that forest land under communal tenure is higher than the oft-cited 80% figure. A histogram (Figure 1) of communal forest land shows that most communal parcels of forest land fall in the 1-3000 hectare range, with a sizeable number in the 6000-15,000 hectare range.

The professional forester is often the main interface between the community and government officials and possibly also between the community and the buyers of community timber products. Our data indicates that about half of the foresters in the six states listed work with communities (Table 6). Government programs, including

PROCYMAF, have included workshops for technical service providers as part of the effort to enhance resources going to the community forestry sector. In all likelihood, this will continue to be a need in developing forest policy.

Grade of marginalization is a widely used poverty measure created by INEGI to categorize municipalities in Mexico. The measure encompasses a range of factors such as housing building materials and access to public services. As seen in Table 7, most communities engaged in logging rank high in their degree of marginalization, where five is a high level of marginalization and one represents a higher quality of life. Three is average. Durango is the only one of the six states where a fairly high percentage of *ejidos* are above the average poverty measure.

Nontimber forest products are another source of value from forest resources. SEMARNAT issues permits for the commercial harvest of many nontimber forest products, while extracting nontimber products for own use or local sale is widespread and not recorded. Table 8 shows the nontimber forest products licensed in the six states. Oregano and chicle are at the top of the list. As we include the remaining states of Oaxaca, Michoacan, Puebla and Guerrero, we expect to encounter mushrooms and *barabasco* as among the additional nontimber forest products under official permit.

PRODEFOR has contributed about 250 million pesos to community forestry activities in these six states, most of which is directed towards to timber production activities or fire prevention measures (Tables 9 and 10). Further, most of this money has gone to develop management plans, which is a technically intensive and costly process.

Aside from basic collection and sale of raw material, communities engage in organization and processing forest products at the community level. Table 11 lists the various types of activities in which communities engage, some of which involve a significant investment of resources. Sawmills of different capacity and technologies top the list of community processing outlets. Each of these activities represents a degree of

employment of local community members and a bigger stake in access to forest resources.

Finally, we categorized communities according to level of vertical integration, a commonly used means of grouping production firms for studying industrial organization. Vertical integration refers to the extent of upstream or downstream activities a firm encompasses along a chain of production. The categories refer to end product sold by a firm, in this case, the most processed wood product that a community sells, either through stumpage contracts or sales of timber logs or sawnwood. A brief description of the typology is as follows:

1. *Type 1: No end product sold.* Communities with forests suitable for commercial production but do not engage in any organized harvest nor have a forestry management plan.
2. *Type 2: End product = stumpage rights.* In this case, the community contracts with an outside firm to allow the firm the right to enter the community's forest land and log the timber.
3. *Type 3: End product = logs.* Communities which devote labor and capital to log and extract timber and sell to an outside firm.
4. *Type 4: End product = sawnwood:* Refers to communities which have milling capacity to sell sawnwood. In the case of Mexican communities, all these enterprises also conduct the upstream operations of harvesting timber from their forests and transporting it to the community mill.
5. *Type 5: End product= secondary products:* Community organizations which take the additional step of producing finished or semi-finished goods, like plywood, doors, furniture, palettes, tool handles, and dried and treated wood for export.

A descriptive assessment of the community's production type suggests the community's level of control over the production process and markets accessed. An underlying theoretical explanation for the patterns of types across communities is based on the concept of transaction costs, or the costs that communities face in selling timber.

As transaction costs can be significant barriers to participating in a market, we will apply this typology for future analysis of the community sector.

We are still in the process of compiling data for the Type 1 communities. Research in specific states indicates that these are the largest category of "forest communities" and also at the most risk of extensive deforestation. Deforestation tends to be higher in communities with no forestry management plan (Duran *et al* in press). Therefore, PROCYMAF in assessing the needs of individual communities has grouped communities according to the above typology and channels most of the resources going to Type 1 communities for developing management plans, be it for commercial forestry or conservation purposes. Further information on Type 1 communities will contribute more to understanding the specific needs and characteristics of this group and whether some form of commercial forestry is feasible or desirable.

For a preliminary assessment, our category of Type 1 communities is derived from SEMARNAT permit files. They consist of communities who at the time of the research team's visit to the state delegation offices in 2003 or 2004 were on file as having a permit from SEMARNAT but which currently were not harvesting, either because their permit had expired or because of a voluntary suspension of their permit. Therefore, this category may refer to a community that had a sawmill in the past but dismantled it, or to a community experiencing an internal problem or external territorial conflict where they asked the SEMARNAT delegation to suspend the logging permit. It would be expected that some of these communities in the near future could "come back on line" and produce timber more quickly than a community with commercially viable forest stock but which had never engaged in forestry before, either through stumpage contract or own operations. Table 12 below shows that Type 1 communities under this categorization are the largest number of communities with forest resources, representing a sizeable potential in the community forestry sector.

The next largest category is the stumpage communities, although Type 3 logging communities are nearly as large a category. The drop-off moving from logging to milling

communities is quite large, and only a few communities in these six states have more advanced processing capabilities.

Table 13 pools data from the six states noted above, less Chihuahua. The average parcel size increases steadily by type from the Type 1's to Type 4's with a sudden increase from Type 4 to 5. In all cases except Type 5, however, the standard deviation is larger than the average, so that parcel size by type has a large variation. As we proceed one Type at a time, the adjusted Wald test is significant at the 10% level or better between Types 2 to 3 and 3 to 4, but not between Types 1 and 2 and Types 4 and 5. As both Types 4 and 5 timber operations support a sawmill, the lack of significance in average parcel size is not surprising. It appears that forest size may be a factor in determining production type, according to the definition used here, but the wide variation in parcel size within each category suggests it is not the only factor[1].

Conclusion

The data presented here stands as a first cut in our efforts to give greater shape and definition to the meaning of community forestry within the specific context of Mexico's agrarian sector. Preliminary evidence supports the notion that communal forest land accounts for most of Mexico's forested areas. The additional data indicates the complexity of communities' involvement in forest activities through integration into the timber market, collection and sale of nontimber products, use of professional foresters and connection, though mostly nascent, with government programs. Rather than being an isolated sector, the Mexican forest communities have many points of interaction both real and potential with outside agents. Forest management in turn becomes an issue of internal governance and wellbeing at the local level as well. Assessing the challenges to communities' role in conservation, sustainable management, timber supply and rural economic development will be the target for our next research efforts.

[1] See Antinori (2000) for a theoretical and empirical analysis of factors determining community production type.

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Table 1. Communities with Logging Permits

State	Comunidades	Ejidos	Total
Total	**324**	**1606**	**1930**
Durango[1]	75	271	346
Chihuahua[1]	28	223	251
Michoacan[1]	54	196	250
Guerrero[1]	38	140	178
Jalisco[1]	12	145	157
Puebla[1]	4	153	157
Chiapas[1]	9	122	131
Oaxaca[1]	81	15	96
Quintana Roo[1]	0	82	82
Veracruz[2]	0	64	64
Campeche[1]	0	63	63
Nayarit[2]	23	37	60
Guanajuato[2]	0	23	23
San Luis Petosi[2]	0	22	22
Colima[2]	0	20	20
Tlaxcala[2]	0	16	16
Coahuila[2]	0	7	7
Morelia[2]	0	5	5
Aguascalientes[2]*	0	2	2

*Contingency plans

1. Data from national survey project database
2. Data from consultations with SEMARNAT officials

Table 2. Number of parcels with management plan, by tenancy

State	Comunidades	Ejidos	Colonial	Total E/C/Co	Particular	Total	% E/C/Co of State Total
Campeche	-	63	-	63	18	81	78%
Durango	75	270	-	345	1379	1724	20%
Chihuahua	28	223	8	259	1146	1405	18%
Jalisco	12	145	-	157	169	326	48%
Chiapas	9	122	-	131	150	281	47%
Quintana Roo	-	82	-	82	20	102	80%
Total	**124**	**905**	**8**	1037	2882	3919	26%

Table 3. Land Classification by Tenancy and State

Tenancy	Total Land Area (ha)	# obsvns.	Forested Land Area (ha)	# obsvns.	Land Area Authorized for Harvest 1991-2003* (ha)	# obsvns.
Campeche						
Communal	0	0	0	0	0	0
Ejidal	1,572,903	62	978,305	63	142076	62
Particular	na	18	na	18	9571	18
State totals	*1,572,903*	*80*	*978,305*	*81*	*151647*	*80*
Durango						
Communal	1,934,444	72	804,450	60	179592	70
Ejidal	2,168,075	252	1,603,542	252	442805	252
Particular	37,558	67	-	0	216396	794
State totals	*4,140,077*	*391*	*2,407,992*	*312*	*838793*	*1116*
Chihuahua						
Communal	332,168	28	208,359	25	67913	28
Ejidal	3,696,457	223	2,459,911	200	698172	222
Colonial	126,266	8	-	0	18407	8
Particular	696,249	1125	-	0	301110	1146
State totals	*4,851,140*	*1384*	*2,668,270*	*225*	*1085602*	*1404*
Jalisco						
Communal	985,886	12	177,189	12	25701	12
Ejidal	379,566	140	242,541	139	91819	141
Particular	-	-	-	-	-	-
State totals	*1,365,452*	*152*	*419,730*	*151*	*117520*	*153*
Chiapas						
Communal	15,072	9	9,852	9	7889	9
Ejidal	332,183	119	184,647	118	100570	122
Particular	-	-	-	-	20247	150
State totals	*347,255*	*128*	*194,499*	*127*	*128706*	*281*
Quintana Roo						
Communal	0	0	0	0	0	0
Ejidal	1,387,890		580,004		176795	
Particular	15,507	20	14,887	20	2910	20
State totals	1,403,397	20	594,891	20	179705	20
Totals						
Communal	3,267,570	121	1,199,849	106	281,095	119
Ejidal	9,537,072	878	6,048,949	854	1,652,235	881
Colonial	126,266	8	-	0	18407	8
Particular	749,314	1,212	14,887	38	550,233	2,128
Grand Total	**13,680,222**	**2,219**	**7,263,685**	**998**	**2,501,970**	**3,136**
Percent of Grand Total						
Communal	24%	5%	17%	11%	11%	4%
Ejidal	70%	40%	83%	86%	66%	28%
Colonial	1%	0%	-	-	1%	0%
Particular	5%	55%			22%	68%

*Refers to authorized land under both current and noncurrent management plans.

Figure 1. Histogram of forested land are under communal tenancy for six states

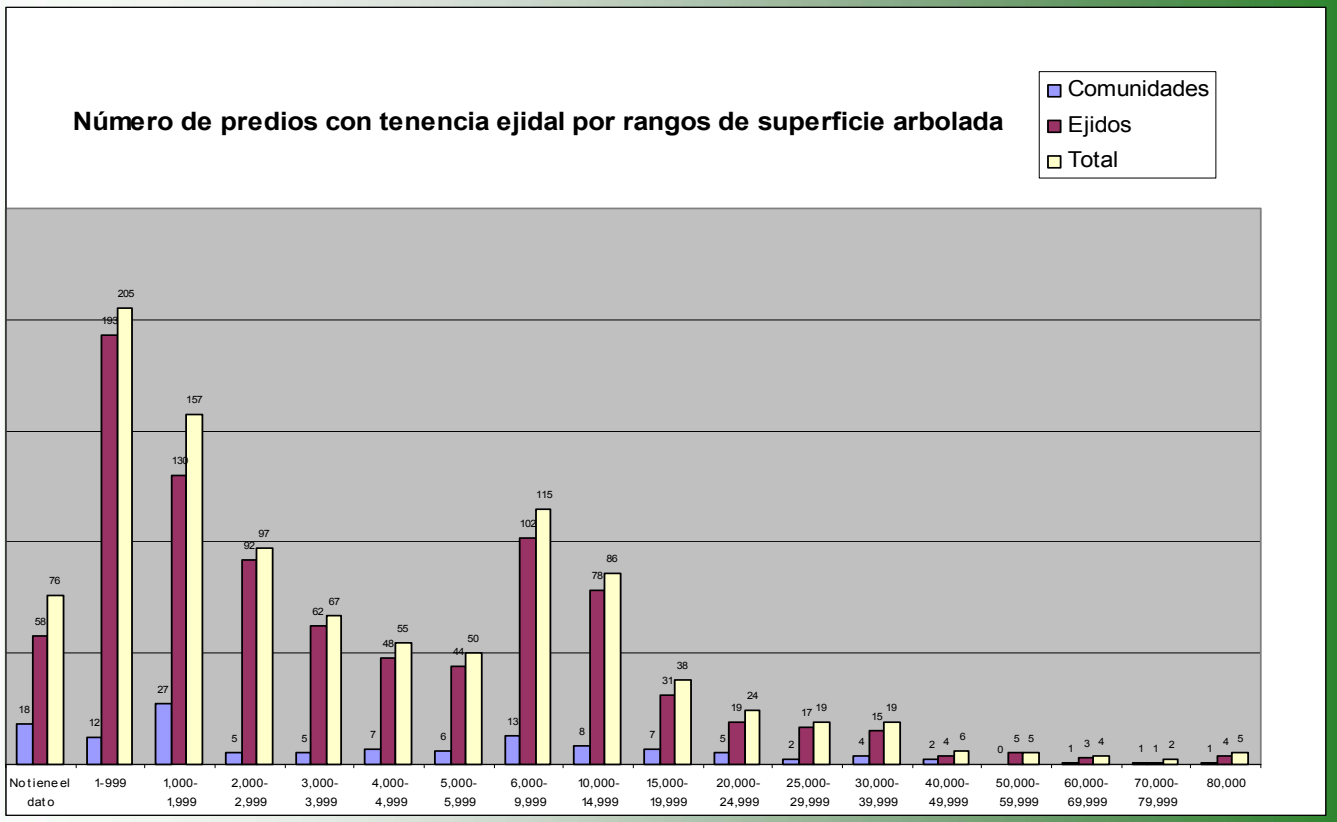
Número de predios con tenencia ejidal por rangos de superficie arbolada
Comunidades
Ejidos
Total
18 58 76
12 199 205
27 130 157
5 92 97
5 62 67
7 48 55
6 44 50
13 102 115
8 78 86
7 31 38
5 19 24
2 17 19
4 15 19
2 4 6
0 5 5
1 3 4
1 1 2
1 4 5
No tiene el dato
1-999
1,000-1,999
2,000-2,999
3,000-3,999
4,000-4,999
5,000-5,999
6,000-9,999
10,000-14,999
15,000-19,999
20,000-24,999
25,000-29,999
30,000-39,999
40,000-49,999
50,000-59,999
60,000-69,999
70,000-79,999
80,000

Table 6. Number of Professional Foresters Serving Communities

State	Total Number in State	Serving *comunidades*	Serving *ejidos*	Total in communities
Campeche	NA	0	10	10
Durango	49	22	34	40
Chihuahua	85	17	38	41
Jalisco	70	5	24	24
Chiapas	21	5	16	5
QR	22	0	12	12
Total	261	49	134	110

Table 7. Degree of marginalization as defined by INEGI

	Communal					*Ejidal*				
	5	**4**	**3**	**2**	**1**	**5**	**4**	**3**	**2**	**1**
Campeche	-	-	-	-	-	23	1	10	28	1
Durango	29	32	3	9	2	20	90	30	69	61
Chihuahua	12	11	0	5	0	119	46	1	48	9
Jalisco	2	7	2	0	1	2	25	50	62	6
Chiapas	8	1	0	0	0	59	56	4	3	0
QR	-	-	-	-	-	0	53	0	28	1

*Note: Grade of marginalization is defined at the level of the municipio and not for individual communities. In addition, grades between states are not consistent so that interstate comparisons should not be made.

Table 8. Number of permits for non-timber forest products

Product	Comunidades	Ejidos
Candelilla	0	9
Chicle	0	42
Guano (Pencas)	0	2
Hoja de Palma Camedor	3	7
Lechuguilla	0	24
Maguey	1	10
Orégano	6	64
Pita (Aechemea magdalenae)	1	0
Sotol	0	2
Total	**11**	**160**

Table 9. PRODEFOR funding (pesos)

State	Period	*Comunidades*	*Ejidos*	Total
Campeche*	1998-2003	0	24,829,701	**24,829,701**
Chiapas	1997-2002	2,887,494	25,509,720	**28,397,214**
Chihuahua	1997-2002	4,965,373	47,972,253	**52,937,626**
Durango	1997-2002	25,305,830	79,276,365	**104,582,195**
Jalisco	2001-2002	3,044,505	12,745,777	**15,790,282**
Quintana Roo*	1997-2002	0	23,874,213	**23,874,213**
Total		**36,203,202**	**214,208,029**	**250,411,231**

*Campeche y Quintana Roo no presentan propiedad comunal

Table 10. PRODEFOR funding activities, 1997-2003

Concepto	Number of activities, *comunidades*	Number of activities, *Ejidos*	Total
Elaboración de proyecto para derribo,troceo, arrime y carga	0	1	**1**
Otros (afai)	0	3	**3**
Servicios ambientales	0	3	**3**
Rodal o modulo demostrativo	2	2	**4**
Instalacion de equipo de secado de madera	0	6	**6**
Modificación estudio técnico justificativo	1	5	**6**
Ecoturismo	1	8	**9**
Transformación Primaria	1	10	**11**
Certificacion de manejo forestal sustentable	1	13	**14**
Silvicultura comunitaria	2	15	**17**
Equipo y maquinaria para la remanufactura	0	21	**21**
Adquisicion de equipo menor	1	30	**31**
Estudios técnicos para el aprovechamiento de recursos no maderables	2	33	**35**
Caminos	8	32	**40**
Asistencia tecnica	7	52	**59**
Manifestación de impacto ambiental	0	60	**60**
Equipamiento al silvicultor	6	67	**73**
Investigación aplicada y transferencia de tecnología	12	74	**86**
Modificacion a programa de manejo forestal	8	90	**98**
Organización, capacitacion y asesoria	23	87	**110**
Limpia de predios forestales	24	130	**154**
Apertura de cepas	30	140	**170**
Estudio técnico para aprovechamiento no maderable	19	177	**196**
Estudios de diversificación productive	23	174	**197**
Cercado áreas de regeneración	53	177	**230**
Estudios complementarios	22	236	**258**
Ejecución programa de manejo forestal	55	248	**303**
Podas aclareos y prácticas de mejoramiento silvícolas	64	288	**352**
Apertura brechas cortafuego	76	392	**468**
Taller de organización y capacitación a productores	68	465	**533**
Elaboracion de programa de manejo forestal	66	482	**548**
Total	**575**	**3521**	**4096**

Table 11. Types of collection and processing centers for ejidos and comunidades*

GIRO	Durango	Chihuahua	Jalisco	Chiapas	QR
ASERRADERO	1	71	8	14	7
ASERRADERO BANDA	19				
ASERRADERO BANDA Y FCA. DE CAJAS	39				
ASERRADERO CIRCULAR Y FCA. CAJAS	1				
BASTONERA PARA MANGOS DE ESCOBA Y/O HERRAMIENTAS		1		4	
BODEGA DE MADERA ASERRADA ASPERA		2		3	
CARBONERA		1			
CARPINTERIA				5	
Centro de acopio de HOJAS, FOLLAJE, HIERBAS, ETC				1	
Centro de acopio de látex					2
CENTRO DE ALMACENAMIENTO DE MATERIAS PRIMAS FORESTALES			8		
CENTRO DE SECADO		1			
DESTILERIA		1			
EMPACADORA DE HOJAS, FOLLAJE, HIERBAS, ETC				1	
FABRICA DE CAJAS	2	4		2	
FABRICA DE CAJAS ALAMBRADAS	1				
FABRICA DE CAJAS PARA EMPAQUE	1				
Fábrica de muebles				1	1
FCA. DE TARIMAS Y CAJAS	20				
MADERERIA		1		4	
MADERERIA Y PATIO DE CONCENTRACION			1		
OREGANO	3				
OREGANO Y PALMA	1				
OREGANO, CANDELILLA Y LECHUGUILLA	1				
PALMA	1				
PATIO DE CONCENTRACION DE MADERA	15				
PATIO DE CONCENTRACION DE TROCERIA Y/O ROLLIZOS		14		12	
PRODUCTOR DE MEZCAL	8				
Productos maderables y no maderables**					1
REMANUFACTURA DE MADERA	1				

*Campeche had no such establishments

Table 12. Production Typology for Ejidos and Comunidades

Production Type	Campeche	Durango	Chihuahua	Jalisco	Chiapas	QR	Total
Type 1	18	57	87	61	35	35	293
Type 2	1	87	60	100	20	1	269
Type 3	26	66	81	2	21	24	220
Type 4	0	33	33	6	1	6	79
Type 5	0	4	1	0	0	1	6
Not classified	18	98	17	21	58	26	238
Total	63	345	279	190	135	93	**1105**

Table 13. Authorized Timber Harvest Area by Community Production Type for Campeche, Chiapas, Durango, Jalisco, and Quintana Roo

Production Type	**Average Forested Land Area under Permit**	**N**	**SD**
Type 1	**1078**	**136**	**3611**
Type 2	**1346**	**105**	**1557**
Type 3	**2027**	**134**	**2315**
Type 4	**3262**	**40**	**4025**
Type 5	**14399**	**3**	**7309**
Total		**418**	