

**Confronting Globalization in
the Community Forests of
Michoacán, Mexico:**

**Free Trade, Neoliberal Reforms,
and Resource Degradation**

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Introduction

A great deal has been written speculating about the social and ecological impacts of the GATT and NAFTA free trade agreements, the freeing up of ejido lands for privatization, and other policies aimed at "modernizing" rural Mexico, especially in terms of how they may affect the viability of traditional agricultural and social systems.¹ Many observers express deep concern over the effects that importing cheap corn from the U.S. will have on rural communities in Mexico.² While the main focus of this work has been on agriculture, a number of authors have suggested that free trade and neoliberal economic policies will also be devastating for Mexican forest communities and, by extension, for the temperate and tropical forests they manage.³ The Mexican market was recently opened to a flood of imported wood products. Yet there has been little data gathered so far to document how these changes in economic conditions have actually affected the way that the owners of forests manage their resources, or what trade liberalization implies for forest sustainability, broadly defined.

This article examines how a young but important social movement--the Mexican community forestry movement---is being affected by liberalized trade, economic and forest policies, and by the reduction of the role of the state in supporting and regulating forestry. It is based largely on research conducted during 1995 in the Meseta Purepecha, a forested volcanic plateau in the Western-central state of Michoacán. Its temperate oak and pine forests are home largely to Purepecha indigenous communities. Michoacán is experiencing severe deforestation, and the Meseta is no exception. About half of the native forests in the area have been lost since 1963.⁴ Through interviews with communal residents, directors of communal forest businesses, foresters, researchers, state and federal officials and policy makers, the author studied the dynamics of forest use and degradation in the region. The research focused closely on three indigenous communities with very different experiences in forest management and attempted to gauge the impact of neoliberal policies on the prospects for long-term "sustainable" forest management in the Meseta.⁵ This article also examines new federal forest policy initiatives to promote sustainable forestry, and the difficulties of creating incentives for sustainability in the context of free trade agreements.

¹ Toledo 1992

² Alvarez Icaza et. al. 1992

³ Alvarez Icaza 1993; Bray, Carreón, and Santos 1993; Szekeley 1995

⁴ Alvarez Icaza et. al. 1993

⁵ Much of the data in the article comes directly from interviews conducted in these forest communities. Several key interviews are cited and appear in the list of references. I would especially like to thank the comuneros (communal members) of Nuevo San Juan, Cherán and Angahuan, and others who helped with this research, which was conducted on a Fulbright Graduate Fellowship.

Mexico is the world's fourth or fifth ranking nation in terms of biodiversity.⁶ Mexican temperate forests contain a very high number of pine species and the largest number of species of oaks. The percentage of forested land in protected areas such as Biosphere Reserves is small, and it is the peasant and indigenous communities which live in and own these forests, acting in relation to economic pressures and forces, who primarily determine their condition and how they are used. Mexico has 25 million hectares of temperate forests and 24 million hectares of tropical forests. They are home to about 14 million people (one-sixth of the population), and to the great majority of the nation's indigenous people.⁷ So, even though the nation is small in terms of forested area and timber production in comparison to its northern neighbors (**Figure 1**), what happens to its temperate and tropical forests has significant implications for the protection of both cultural and biological diversity.

Mexico's Forests: Tenure And Present Context

The current scenario is not promising. The most widely-respected estimates place deforestation at 670,000 hectares (1.7 million acres) annually, with over two-thirds of that occurring in tropical forests.⁸ Clearing of forests for other land uses is responsible for about three-quarters of Mexico's deforestation; illegal logging and fires are other significant factors.⁹ Agrarian policy incentives such as the government's PROCAMPO program strongly encourage the conversion of primary forests to extensive cattle grazing in the tropics, and to various cash crops in the temperate highland regions.¹⁰ Deforestation, degradation and erosion are the results of an institutional and economic framework which does not fully value the social benefits or the environmental "services" of healthy forests.¹¹

The ownership of Mexican forests is a situation unique within Latin America. While the nation technically owns the trees themselves, more than 80 percent of the forest land is in the hands of collective *ejidos* and indigenous communities--in other words under collective tenure, largely as a result of the agrarian reform begun after the Mexican revolution.¹² Both *ejidos* and indigenous communities usually include within their boundaries a mix of individually managed agricultural parcels, and pasture and/or forests in collective usufruct. Of these two entities, indigenous communities tend to be larger in size and control the best and most intact forests. The Meseta Purepecha in Michoacán is composed almost entirely of indigenous

⁶ Sarukhan 1994

⁷ SEMARNAP 1995 c

⁸ Masera, Ordoñez, and Dirzo 1992

⁹ SEMARNAP 1995b

¹⁰ F. Chapela 1995

¹¹ Masera, Bellon, and Segura 1994

¹² G. Chapela 1994

communities, each of which range from 3,000-20,000 hectares (8,000-50,000 acres) in area.

In referring to "communities" throughout this article, I include both *ejidos* (mainly mestizo) and indigenous communities, jointly forming what is known in Mexico as the "social sector," as distinct from the private or state sectors.

Compared to their counterparts in the rest of Latin America, these forest communities are fortunate to have secure land tenure. But despite the predominant social sector ownership, forest communities historically have been largely excluded from the economic benefits of their forests. Profits have typically gone to sawmill operators, regional power bosses (caciques) and large parastatal operations such as paper mills instead of to the forest owners, partly due to government forest policies. The overwhelming majority of the timber industry in the country is in private hands (**Figure 2**). This disparity between the social ownership of the forest land and the private control over timber processing is at the crux of the current crisis in the Mexican forest sector.

Historical Roots of Forest Degradation

Any discussion of the roots of forest degradation in Mexico must begin with the legacy of policies that have consistently undervalued the products and services of healthy forests, and have provided a variety of incentives for their destruction and conversion.

Prior to the Mexican revolution of 1910-1920 and for several decades after, U.S. and other foreign companies operated sawmills alongside their Mexican counterparts. The pine and fir forests of Durango and Chihuahua fueled early 20th-century housing construction in the southwestern United States. Even after president Lázaro Cárdenas nationalized the oilfields in 1938, foreign interests retained a presence in forestry.

After World War II, however, Mexico attempted to develop a national "economic miracle" based on high protective tariffs, import substitution and state-sponsored industrial expansion. This period was marked by an increasing state role in the forest sector as well. Beginning as early as 1943, federal law created entities called Forest Exploitation Industrial Units (UIEF's). This policy granted control over huge forested areas to large, national industries which integrated logging, milling and cellulose production. These industries carried out high-grading (selective logging to remove the best and largest trees) on land belonging to ejidos, indigenous communities and private smallholders; the forest owners were compensated with a negligible stumpage fee. Between 1945 and 1972, twelve

UIEF's were created, with timber concessions on up to 300,000 hectares (750,000 acres), most lasting 25 years.¹³

These concessions all eventually became parastatal enterprises, partnerships between the federal government and national industries. By 1977, timber parastatals controlled 56 percent of the national timber industry.¹⁴ Foreign interests were essentially shut out of the timber production picture, a situation that continued until the 1990's.

While the forestry concessions left a wake of ecological degradation (with virtually no reforestation), they did help build the "modern" forest industry the Mexican government had hoped for. Unfortunately, that industry, heavily protected from foreign competition, turned out to be highly inefficient and wasteful. Later, when the doors were abruptly thrown open to a globalizing economy, this would prove devastating.

In addition to the deforestation occurring under the concessions regime, other national policies took a high toll on forest ecosystems. During the 1970's and early 1980's, incentives for tropical colonization (the Tropical Land Clearing Program -- *Programa Nacional de Desmontes*) transformed 28 million cubic meters of forest into cattle pasture and agricultural lands.¹⁵

Each of these policies in its own way contributed to (and was shaped by) an undervaluing of forest resources. While the state recognized the importance of forests in national development (the construction industry, for example), it failed to link the need for wood with any coherent plan to assure a sustained yield of timber. Mexican rural policy has consistently favored expansion of the agricultural frontier over forest conservation.¹⁶ A large part of the problem in Mexico was a disregard for the *de facto* forest tenure regime. Long excluded from sharing in the benefits of the forests on their own land, these forest communities are among the most economically marginalized regions of Mexico.¹⁷

Community Forestry: A Response

However, forest *ejidatarios* and *comuneros* did not passively accept this fate. In the southern state of Oaxaca, Zapotec and Chinantec indigenous communities had been working as wage laborers in their own temperate pine and oak forests, gradually learning the business of forestry. Angered by watching their patrimony

¹³ Bray and Wexler 1995

¹⁴ *ibid.*, p. 3-4

¹⁵ *ibid.*, p. 5

¹⁶ Wexler and Bray 1995, p.1

¹⁷ SEMARNAP 1995

degraded, they formed a regional organization in 1981-82 and succeeded in halting the renewal of the 25-year timber concession to FAPATUX (Tuxtepec Paper Factories), a parastatal UIEF. The example was infectious. A growing number of communities across Mexico are succeeding at taking control over their own forest resources, making decisions collectively about forest management, and capturing more of the economic benefits for their members. These operations are known as community forest enterprises (CFE's), and they represent an important alternative model of rural development. This movement is especially strong in Oaxaca, Guerrero, Michoacán, the southern states of Chiapas and Quintana Roo, and Chihuahua and Durango in the northern Sierra Madre.

The benchmark of these new CFE's --also called forestry cooperatives-- was the act of setting up their own sawmills to add value to whole logs. Empowered by the realization that the social sector owned 80 percent of the nation's forests, CFE's saw that by controlling the supply of timber, they could have some control over the price. This process of taking charge of the destiny of their own forests is often referred to in Mexico as "appropriating the productive process." Among the central principles of this movement are sharing of benefits among members, reinvesting part or all of the profits in the communal enterprise, adding value to forest products and the notion that forest extraction and conservation are compatible. The best organized CFE's began to parlay this economic return into a variety of social dividends, including schools, roads, electricity and health centers.¹⁸

However, market-oriented production forestry is as new a concept to the Zapotec indigenous people of Oaxaca or to the Purépecha of Michoacán as it is to mestizo communities. While this type of operation holds promise for forest protection and community development, it is not a panacea for social, economic and environmental ills. As Forster and Vargas (1995) note, adopting industrial forestry methods (with their attendant work rhythms and financial demands) can place severe strains on traditional cultural beliefs and authority systems.

As their numbers grew throughout the 1980's, many CFE's explicitly or indirectly addressed environmental issues. Positioning themselves as the true conservationists, they asserted that as owners of the forest resource, they were the only people able both to make a living from the forest and protect it over the long term. Communal assemblies began to plan reforestation and watershed protection along with timber harvests. Yet the *economic* strategy of value-added wood production--processing logs into dimensional lumber, moldings, furniture and other products--actually sits at the core of the CFEs' *ecological* promise: if rural people see more value in a standing forest than in a forest cleared for cattle ranching, the argument goes, they will protect the trees for the income flow they represent.

¹⁸ Bray 1991

This new and significant community development model has borne fruit. One-fifth of Mexico's forest communities now have some form of organized communal production, and these have grown to the point where they produce one third of the nation's forest products.¹⁹ A 1986 federal forest law, the product of pressure by CFE's, local non-governmental organizations (NGO's), and sympathetic government insiders, marked a major change in Mexican forestry policy by explicitly recognizing the right of communities to manage their own resources and favoring social sector timber producers over their private sector counterparts. Yet this landmark "pro-campesino" law would only be in effect for six years; already major changes were beginning to shake rural Mexico.²⁰

Meseta Purépecha: Ecological Degradation

The Meseta Purépecha is a forested volcanic plateau in the western-central state of Michoacán. Its temperate oak and pine forests are home largely to Purépecha indigenous communities. Michoacán is experiencing severe deforestation, and the Meseta is no exception. About half of the native forests in the area have been lost since 1963.²¹ Clearing of forests for other land uses is responsible for about three-quarters of Mexico's deforestation; illegal logging and fires are other significant factors.

Indigenous communities in the Meseta illustrate many of the national phenomena affecting community forestry. The author worked extensively in three of these communities during 1995, interviewing *comuneros*, community and CFE officials, foresters and representatives of regional non-governmental organizations.

Two of the study communities, Cherán and Nuevo San Juan Parangaricutiro, are CFE's with their own communally-run sawmills and chip mills. They both employ communal members in timbering, wood and resin processing, and reforestation. Profits are reinvested in the cooperative. However, the two have very different levels of infrastructure and of social and economic consolidation.

Nuevo San Juan is one of the most successful CFE's in Mexico (this success is partly due to its favored status in receiving state credit and subsidies). The community has developed a large, vertically-integrated forest industry, producing everything from wood chips and pine boards to moldings and fine furniture. Nuevo San Juan has 1,200 families, and until recently the sawmill and forestry operation employed about 850 people at pay well above the Mexican minimum

¹⁹ Chapela and Lara, 1993.

²⁰ Bray and Wexler, p.7-8

²¹ Alvarez Icaza, et. al., 1993.

wage.²² The nearby community of Cherán has a much smaller CFE, employing about 45 *comuneros* in its sawmill and forestry operations.

In Michoacán, pine resin tapping is a significant economic activity, and this state produces and refines virtually all of Mexico's resin, which goes into paint and chewing gum or becomes turpentine. Both Nuevo San Juan and Cherán operate resin distilleries and pay communal members by the kilogram for raw resin from the forest. Resin tapping does not seriously weaken the trees if done correctly, and the constant flow of economic benefits can be a strong incentive to keep forests intact.²³ However, improper tapping practices are to blame many of the forest disease problems in the region.

The third community, Angahuan, is not organized into a CFE; many of its residents work in more than 60 family-owned band-saw workshops (*talleres*), producing packing crates for the avocado and citrus industries. Together, these three communities represent the range of social sector forestry experiences in the Meseta and, to some extent, nationally. **Table 1** provides comparative profiles of San Juan Nuevo, Cherán and Angahuan.

Barriers to CFE Success

Years before the advent of continental free trade, several internal problems with deep historical roots conspired to stunt the development of the social forestry sector in Michoacán and elsewhere. First, inter- and intra-communal land conflicts, dating back to the height of Mexico's agrarian reform under President Cárdenas, distracted comuneros' attention. The conflicts (*litigios*) originated with poorly-drawn boundaries between neighboring communities, and were fueled by local political and business interests who had a stake in these communities remaining disorganized.²⁴ The community of Cherán, for example, officially owns 20,713 hectares (about 50,000 acres), but claims another 3,000 from neighboring landowners. Conversely, 140 of Cherán's hectares are claimed by its neighbors.²⁵

Nuevo San Juan Parangaricutiro and Angahuan share a common border as well as animosities: at least one resident of Angahuan was killed in a dispute over timber cutting on land claimed by Nuevo San Juan.²⁶

Perhaps a more systemic problem is the discrepancy between the dominant social sector ownership of the forest resources (80 percent) and the near-total private

²² Alvarez Icaza 1993

²³ Alvarez Icaza et. al. 1993

²⁴ *ibid.*

²⁵ *ibid.*, p. 104

²⁶ Comunero from Angahuan, personal communication, March 1995.

sector control over the timber industry (94 percent). Despite the fact that some CFE's have acquired state-of-the-art sawmills, the majority of forest communities still either sell whole logs to mills or "rent" their forests to intermediaries for a stumpage fee (*rentismo*), a situation little different than during the era of concessions.

Finally, corruption within some ejidos and *comunidades* (as well as collusion with corrupt governmental authorities) keeps the benefits of community forest management from being equally shared in many cases. *Rentismo* and intra-communal conflict are often associated with accelerated rates of deforestation.

In addition, less well-organized CFE's like Cherán are engaged in a constant struggle to protect their communal forests from clandestine or illegal logging (the terms are synonymous in Mexico) by their neighbors and even by members of their own community.

This *clandestinaje* varies in scale from individuals using horses and mules to highly organized and even armed operations with large trucks. In 1987, for each cubic meter of timber cut legally in the Meseta Purepecha region, another 1.75 cubic meters were extracted illegally.²⁷

In indigenous communities, internal clandestine cutting by the community's own members is often a result of the weakening of traditional systems of authority and social consensus-building. Because it does not cover any of the environmental costs of logging (i.e. through reforestation or erosion control), *clandestinaje* is very attractive to individuals or families in immediate economic need. In the long run, of course, it can be ecologically devastating. Nuevo San Juan is by some accounts the only forest community in the Meseta Purépecha to bring a halt to *clandestinaje*, which it has accomplished through constant patrols along its borders but also by offering its members jobs in the CFE which are more attractive than illegal logging.

Not all cutting is highly degrading simply because it is illegal. Firewood collection, for example, is not usually included in timber permits, but it can be sustainable if kept at reasonable levels. However, because clandestine cutting is almost always high-grading and it occurs in addition to authorized cutting, the legal/clandestine distinction is useful in understanding the relative impacts of different logging activities.

²⁷ Caro 1987

Sustained-Yield Or Sustainable?

Since its inception in the 1920's the Mexican forestry profession has operated in principle on the tenets of selective cutting and sustained-yield timber harvests, yet much of the logging carried out in Mexico has actually been high-grading, under the guise of sustained-yield. Many view professional foresters as simply presiding over a dwindling resource base. While logging methods have changed somewhat, timber plans in most CFE's are still prepared by foresters based mainly on market-oriented, sustained-yield production criteria, and often ignore the diversity of natural forests. Until recently, ecological concerns --except for the continued existence of the forest base-- did not figure centrally in communities' management decisions. Some CFE's, however, are now becoming attuned to issues of ecosystem protection and are using techniques more appropriate to local ecological conditions.²⁸ Nuevo San Juan is beginning to place more emphasis on promoting the native diversity of its forests.

Gale and Cordray (1991) point out that as the debate over forest management on federal lands in the United States grew more sophisticated during the 1980's, the concept of sustained-yield was replaced by attempts to define forest "sustainability," a notion encompassing broader concepts of ecosystem integrity. Any definition of sustainability forces the question of what exactly forests (and forest management) should sustain--timber, fauna, clean water, etc.--over what time frame, and for whom? Among the movement worldwide for sustainable forest practices, there is a growing awareness that forestry must be not only ecologically appropriate, but also socially responsible and economically viable.²⁹

Given the current pressures on forests across Mexico, holding forest communities to a standard of management which might be called "sustainable" in the Pacific Northwest of the U.S. is not realistic, nor even desirable. Mexican community forestry is moving gradually toward its own definition of sustainability. Yet it can be argued that in the present Mexican context, even the more "traditional" sustained-yield management techniques are sustainable if they create jobs and do not involve high-grading, because they serve to keep forests intact as forests. If forest management cannot be kept economically viable, the unsustainable alternatives are very likely to escalate.

Mexican forest law requires permits from the Ministry of Environment, Natural Resources and Fisheries (SEMARNAP) for all forestry operations, with additional oversight by the Ministry of Agriculture (formerly SARH, now SAGDR). It sets allowable timber cut levels based at least theoretically on silvicultural studies and requires permittees to pay foresters for "forest technical services" like marking

²⁸ Cabarle 1991

²⁹ Cabarle 1994

timber and developing management plans. About a third of the 21 million commercially-viable hectares of forest in Mexico are under permit, in 4,000 ejidos, indigenous communities and private parcels.³⁰ Some of the most advanced CFE's (including Nuevo San Juan) won the right to administer their own forest technical services under the 1986 forest law.

However, that legislation was not long in effect. A new 1992 federal forest law, part of the agrarian package put forward by President Salinas, deregulated the Mexican forest sector.³¹ Consonant with the neoliberal emphasis on reducing the role of government in regulating private industry, the new law drastically curtailed SARH's mission to control forestry, and did away with many of the procedures and paperwork which were required to document a legal timber harvest. Patrols which checked the authorizations of lumber trucks have been virtually eliminated, and sawmills no longer need to prove that they are processing wood from legal operations. This new legislation passed the cost for forest technical services on to communities, and canceled many of the provisions of the 1986 law which were so favorable to CFE's. However, the most successful CFE's, chafing under restrictions and a massive forest bureaucracy, had actually pushed for many of the changes.

At the same time, the deregulation makes illegal logging (already a huge problem) even easier to carry out, and at least one study documented a significant rise in clandestine timber cargos in central Michoacán due to the 1992 law.³² A couple of foresters I talked to described the new law as making it "easier to be good, but also easier to be bad."

Avocado And Forests In Michoacán

While much of the timber cut illegally in the Meseta Purepecha clears the way for subsistence agriculture (despite falling corn prices), there is another destructive connection between agriculture and forests in the region.

Avocado is known in Michoacán as el oro verde--"green gold." It took off rapidly as a cash crop at the lower elevations of the moist Meseta Purepecha region beginning around 1970, with the introduction of the hybrid Hass variety. In 25 years the avocado orchards have expanded to 75,000 hectares (almost 200,000 acres) on private, ejido and communal lands. Close to two-thirds of this expansion --about 45,000 hectares-- has directly replaced native forests. The impacts of this rapid deforestation have begun to be felt: erosion problems, diminishing groundwater supplies, and possibly regional climate change.³³ Michoacan now produces 85

³⁰ SEMARNAP 1995b

³¹ Mexico 1992

³² Cuna-Avila, Serrano-Gálvez, and Ayala-Sosa 1994

³³ Caro 1995

percent of Mexico's avocado crop, or approximately 40 percent of global avocado production.³⁴

One of the study communities in the Meseta, Angahuan, illustrates the diversity of ways an expanding agricultural frontier is linked to deforestation. Angahuan does not have a communal forest enterprise. Instead, individual household band-saw workshops produce pine packing crates for the fruit industry, predominantly avocado. The number of these workshops multiplied rapidly as avocado spread and now stands at over 60 in Angahuan. The wood is illegally cut, and 70% of the families in this town of 5,000 depend on the crate workshops for their livelihood.³⁵

The results have been devastating. Aside from one small forest reserve area, all of the commercially viable forest left on the community's 6,000 hectares was cut by 1992, with negligible reforestation. The crate workshops now must buy their pine from neighboring communities, who are well along on the same road.

Angahuan sends about 2 million pine crates each year to packing plants in the cities of Uruapan and Periban, and is only one of several indigenous communities in the region linked in this way to the fruit industry. While some fruit crates are now made from plastic and cardboard, these one-time-use pine crates are still the majority. The region as a whole consumes 14 million pine crates yearly, representing about 35 million board feet of timber, and 40 percent of the wood used in this process ends up as waste.³⁶

Thus, even these communities, which sit at too high an elevation to grow fruit crops, are profoundly feeling the impact of those crops. They represent the second part of the "one-two punch" delivered by avocado expansion: first, deforestation for the avocado plantations themselves, and second, further deforestation from the demand for packing crates.

Currently, Michoacán only exports about 4 percent of the avocado crop, mainly to Europe and Japan. Mexico has the world's highest per capita avocado consumption.³⁷ Michoacán was recently thrown into the spotlight by a controversial USDA decision to allow Mexican avocados into the continental US for the first time in 80 years, in line with NAFTA requirements. The new rule allows the fruit into 19 northeastern states, but only during three months in the winter. This limitation

³⁴ Zamora 1995

³⁵ Lázaro 1995

³⁶ Caro 1995

³⁷ Zamora 1995

was imposed to calm fears of US growers that pests will be transferred across the border into California's avocado orchards.³⁸

What will the impact be on the remaining forests in Michoacan? The ruling will raise exports from 33,000 tons per year to about 50,000--still only 7 percent of the total production.³⁹ Avocado orchards yield approximately 10 metric tons of fruit per hectare, so the proposal has the potential to put over 1,500 new hectares into production. However, domestic demand is low due to the economic crisis, so at first the exports will absorb surplus supply, and the immediate impact on forests will probably be minimal. However, if in the future the US market is opened more fully to Mexican avocados, and during a greater part of the year, the result could be more large forested areas converted to plantations in the Meseta region.

Competition From Abroad (And From Within)

The opening of Mexican markets to global trade did not begin with NAFTA; a series of economic and trade liberalization policies had begun in earnest even before the entry of president Carlos Salinas in 1988. Touted by the US and the World Bank as the "model student" in the free market classroom, Mexico under Salinas ended its 75-year agrarian reform, allowed ejidos to privatize their land holdings, reduced subsidies to farmers and embarked on an aggressive program to "modernize" the countryside.

While agriculture was the centerpiece of these changes, forest communities have also been strongly affected by liberalization. Beginning in 1986 and accelerating in the early 90's, Mexico reduced protective tariffs on imported timber, which under NAFTA will soon be fully eliminated.⁴⁰ Long before either country approved NAFTA, cheap wood products were already flooding the Mexican market. Ponderosa pine from the Pacific Northwest, Douglas fir from British Columbia and Radiata pine from Chile arrived in Mexico City and Guadalajara lumber yards, with more consistent dimensions and higher quality than Mexican timber, and at prices as much as 35 to 40 percent lower.

Mexican forestry in general--not just the CFE's-- found itself unable to compete with the extremely efficient, automated mills (not to mention the subsidized forest industries) in these nations, and many forest businesses failed. Domestic timber production declined while imports soared (**Figure 3**). While the recent peso devaluation has made imports much more costly and domestic products more competitive, the current severe economic crisis has reduced demand for

³⁸ Tirschwell 1995; Karst 1995

³⁹ Zamora 1995

⁴⁰ Chapela 1994; Camara Nacional de la Industria Forestal 1994

timber so significantly, and raised interest rates so high, that most CFE's are not experiencing any benefits.

The market opening has threatened the survival of Community Forest Enterprises, partly due to a drop in demand for nationally produced wood, but mainly because market prices for their products have plummeted. The indigenous community of Cherán, in the Meseta Purépecha, was producing pine lumber at a cost of production of N\$ 1.40 (new pesos) per board foot, which sold on the market for N\$ 1.90. When the market opened, Cherán's CFE suddenly found itself competing with US and Canadian lumber available for sale in Mexico City for N\$ 0.90 per board foot.⁴¹ This pattern was repeated with virtually all of the wood (and even non-timber) products produced by the communal enterprises in the region (**Table 2**).

Some of the inefficiencies of Mexican CFE's which make them uncompetitive in open markets, however, are very efficient by other measures, such as creating economic opportunities for community members. In a typical automated Chilean lumber mill, one job is created for every \$1.3 million invested, while in Nuevo San Juan each job costs \$12,000.⁴² For community forestry, lower profits translate directly into fewer jobs and other social benefits.

What happened in the case study communities in the Meseta Purépecha after the market opened? The community forestry operations of Cherán and Nuevo San Juan have survived, but not unscathed. In order to stay viable, they have responded to falling prices in a number of ways. Nuevo San Juan, competing directly with U.S. lumber products from high-tech mills, was forced to slash its work force from 850 to less than 650, temporarily cut pay, accelerate work rhythms and embark on an aggressive plant modernization. The CFE's profits declined dramatically, from 17 percent of sales in 1990 to virtually zero in 1995, and for the first time San Juan could not pay its employees in early 1995 (see **Table 3**).⁴³

Cherán also faced a worsened situation due to the market opening: prices for its lumber and resin dropped, lumber inventory began to rot on the warehouse floor, and many of the community's residents switched from resin tapping to small-scale illegal logging. However, because many people in Cherán make inexpensive artisanal furniture that sells in the region--items no foreign producer makes--they were less directly affected than the employees of Nuevo San Juan's communal industry. In Angahuan, life went on pretty much as normal: the rough pine fruit crates the community produces would not be cost-effective to import into Mexico.

⁴¹ Durán 1995

⁴² Leyton 1986; G. Chapela 1994

⁴³ Sánchez Pego 1995; Aguilar 1995

More recently, the December 1994 peso devaluation has given some CFE's a bit of breathing room (as imports doubled in price), but even with the devaluation, imported Asian wood products (and some from North America) are still undercutting their domestic Mexican counterparts.⁴⁴

A Break for the Forests?

But could there be a bright side to all this for Mexican forests? As **Figure 3** shows, domestic timber production is declining as a result of the market opening and is being replaced by imports. Some observers have suggested this means forests in Mexico are going to get an environmental "break," as the burden shifts to better-managed industrial forests in the North and places like Chile. Is such a scenario likely?

There are several reasons to think not. First, there is actually increased pressure on the forests from some CFE's and other legal operations as they need to cut more timber to compensate for lower prices and to maintain jobs. Many communal assemblies had in the past resisted cutting the full authorized amount of timber, for ecological and cultural reasons. Nuevo San Juan had never cut more than 80,000 cubic meters of pine in any one year, but in 1994-95 the community pushed its cut to the allowed maximum of 104,000 cubic meters⁴⁵ (**Table 3**).

Second, the drop in prices and profits (coming at the same time as the state reduces its support for forestry) wipes out the financial margin which CFE's have used to cover (or internalize) some of the extra costs of long-term forest management, forcing them literally to choose between sustainability and survival in some cases. Many CFE's, now that they must pay for forest technical services, are opting for bargain-basement versions which consist solely of timber marking and do not include fire protection or help with reforestation.

Third, the drop in prices forces forest residents to switch to unsustainable practices. When the price for pine resin dropped due to competition with resin from Venezuela, Finland, and elsewhere, dozens of community members in Cherán abandoned resin tapping and dedicated themselves to illegal logging.

Fourth, forests are just one part of a rural economy, and are usually linked closely to agriculture. As corn agriculture becomes less viable in the face of cheap corn imports under NAFTA and reduced government subsidies, many rural people are migrating to large cities or the US, but others in ejidos and communities turn in hard times to their forests (if they have any) as a ready cash reserve, often leading

⁴⁴ G. Chapela, personal communication, March 1996.

⁴⁵ Aguilar 1995.

to increased clandestine logging.⁴⁶ The deregulation in 1992 of the forest sector makes this last option even less risky for campesino families.

Sound community forestry is being exposed to competition not just from imported forest products, but also from illegal logging within Mexico. In both cases, legal operations are at a great disadvantage: on the one hand, because of economies of scale, management expertise and government subsidies in forest industries in the North, and on the other, because the vast majority of illegal cutting does not cover any environmental costs. For some CFE's, clandestine logging is seen as the greater of the two evils, since it directly impacts forests on their own communal lands (and often involves their own members), and because unlike imports it has not diminished with the peso devaluation.

Table 4 indicates the difficulty that legal operations face competing with clandestine wood products, after they pay for things such as seedling production, reforestation, pruning young trees, fire protection, timber marking, silvicultural treatments, patrolling against illegal loggers, watershed protection and the mandatory fees for forest technical services.

Certification of sustainably-harvested timber is one mechanism which has been put forward to compensate for this disparity. Forest owners whose management is qualified as "sustainable" by a certifying organization have the right to sell their wood products with a special stamp or seal, and take advantage of the higher prices some ecologically-conscious buyers, mainly in industrialized countries, are willing to pay.⁴⁷ At least two CFEs in Mexico are now certified; one, in Quintana Roo's tropical rainforest, exports wood to the US and Europe. While certification has raised a good deal of interest among forest communities, few are currently in the position to produce and market for export. The vast majority of Mexican forest products are sold on the domestic market, which seems unlikely to support a "price premium" for sustainably harvested timber in the near future. So, while certification aims to help forest producers internalize the extra costs of sound management, it does not appear to be a real solution for most Mexican community forest enterprises, and is not a substitute for good forest policy.⁴⁸

"Free Trade": Not the Only Culprit

The experiences of the three Michoacán communities suggest a way to understand the differential effects of liberalized trade on community enterprises like CFE's. The greater degree of articulation to the national or international

⁴⁶ Alvarez Icaza et. al. 1992

⁴⁷ Cabarle 1994

⁴⁸ *ibid.*

market, the larger the risk appears to be from a sudden market opening. Of course, all this says nothing about the environmental conditions under which this wood is cut and processed, or the other threats to forest sustainability that most forest communities face.

A better way to express the relative significance of liberalized trade in terms of its potential effect on forest degradation might be the following. For the larger forest communities best-organized to make wood products sustainably and protect their forests against depredation (such as Nuevo San Juan), facing competition from open markets is indeed a severe problem: it can eliminate the internalization of environmental costs that some have achieved, and can also exact a high social and economic toll in terms of lost jobs. For poorly- to moderately-well organized CFE's, liberalized trade will likely be just one of a multitude of woes, the rest of which are rooted in internal conflict, poor state forestry policy and a dwindling resource base. For a disorganized community like Angahuan, the factors that protect it from the vagaries of the international market are likely the very same ones that harm it ecologically: the niche it can fill is a low-value, low-quality one where it is extremely difficult to internalize environmental costs. The result is evident in Angahuan's mountainsides, denuded or covered with scrubby second-growth pine.

Looking Toward Solutions

Clearly, it is not easy enough to "be good" in the current context. If the national experiment in community forestry fails because of the market opening, the recent economic crisis, or a combination of internal and external factors, more will have been lost than a set of inefficient businesses. The best hope for sound forest management in Mexico will have failed as well, and Mexico's CFE's are the most successful examples of community forestry in Latin America.⁴⁹

Organizations of forest communities and CFE's are clamoring to have the crisis addressed. One common refrain from CFE representatives is that "someone needs to help us cover the costs of doing good forest management." The following are some of the changes which organizations of forest communities and others advocate to keep community forestry viable.

The social forest sector in Mexico needs to be favored and given some economic protection, at least in the short term, because of its critical role as the steward of the vast majority of forests. CFE's are more than just timber businesses; they make sound use of resources a real economic option for forest owners. Their failure implies a series of negative social and ecological effects.⁵⁰

⁴⁹ Bray 1991

⁵⁰ G. Chapela 1994

Mexico needs policies that create incentives for forest communities to protect forests and that provide a premium for sustainable management: essentially, help in covering the extra costs of sustainability. CFE's, because of their long-term commitment to forest production and health, internalize many of the environmental costs of timbering through reforestation, careful selective cutting, or setting aside areas for watershed protection, but in the context of open markets very few can continue to bear these costs.

Many governmental and NGO representatives suggest creating mechanisms to value the products and environmental "services" of healthy, standing forests: services like groundwater replenishment, carbon sequestration, climate control and erosion control. These are functions which forest communities provide to the society as a whole. Compensation in return from other sectors that benefit, such as agriculture, could be directed toward the costs of environmentally sound forestry.⁵¹

Forest communities need support to diversify their local economies: ideally, they can be forest-dependent but should not be *timber*-dependent. Developing a more diverse agricultural base can help communities guard against price shocks and economic downturns, and agroforestry systems have the potential to reduce pressure for clearing forests. Ecotourism may be a viable option for a few strategically located communities. Non-timber forest products such as pine resin, fruits, gums and fungi, because they rely on healthy forests, need to be made a more attractive economic option.

Some of this initiative is already coming, at a local level, from the organized forest communities themselves. Nuevo San Juan Parangaricutiro allows its members to produce pine packing crates, but they must buy the legally-harvested wood from the communal sawmill at cost.⁵² Cherán maintains the price it pays to its members for pine resin artificially high, providing an incentive to protect the trees long-term for their resin, instead of a one-time return from illegal cutting. Yet without a framework (and significant financial resources) to address these dynamics on a national level, such initiatives will remain isolated bright spots against a bleak background of increasing forest degradation.

But are the sorts of policy solutions outlined above really feasible, or even thinkable, in an age of neoliberal economics and within the rules of NAFTA and GATT? Until this past year, the Mexican government refused to consider measures to bolster or protect the foundering forest sector. Today, however, there does appear to be some leadership at the federal level to address issues of both forest

⁵¹ *ibid.*

⁵² Sánchez Pego 1995. As Table 4 shows, the production costs for these packing crates are higher than for the workshops in Angahuan, which run on illegal timber. The price they receive is the same.

sustainability and the economic viability of the sector. Part of the newly-created Ministry of the Environment, Natural Resources and Fisheries (SEMARNAP) has formulated some new and innovative new forest policies, taking advantage of an unusual political opening which placed Julia Carabias, a well-respected researcher and environmental activist, at the head of the agency in early 1995 .

While Carabias inherited most of her staff from the previous Fisheries, Water and Social Development ministries,⁵³ many of whom are political appointees and hostile to some of the new policy initiatives, she has filled several key posts with people who have decades of direct experience in rural communities, organizing around resource and conservation issues. SEMARNAP is actively studying conservation incentive programs from all over the world, and has generated a proposed forest program called FONDEFOR (Forest Development Fund), originally titled PROFORESTAL.

FONDEFOR originally was to allocate 2.3 billion pesos per year (about US \$600 million) to projects for social sector forest communities. The idea is to make sustainable forestry more economically attractive than other options, such as clearing for agriculture, and to protect the social forest sector from the devastating impact of the market opening. FONDEFOR appears to have the backing of President Zedillo and some of its components were implemented during 1996. However, the program underwent a series of changes due to political pressures within the Zedillo administration, partly related to the increased emphasis on developing a Chilean-style plantation sector. The program was eventually allotted only US \$7 million for 1996. The money will function as seed capital to help train community foresters, move communities toward more value-added production, develop new CFE's, and prepare forest management plans.⁵⁴

Unlike the PROCAMPO program, FONDEFOR does not consist of direct payments to peasant families, but rather would provide grants through transparent competitions to social sector forest communities for productive projects and sustainable management. Technical assistance will be given to applicants to provide for equal access to the funding process. Communities will receive funds based on their land area and ecosystem type, and the program provides incentives to improve their productive capacity. Other related pieces of SEMARNAP's forest policy would provide tax exemptions for sustainable forestry enterprises and help retool sawmills throughout Mexico to reduce wood waste.

FONDEFOR was developed with input and pressure from two national organizations of community forest producers, with very different political affiliations. RED MOCAF, the Mexican Network of Peasant Forestry

⁵³ Ranger 1995

⁵⁴ SEMARNAP 1995a

Organizations, is associated with the left political opposition, and grew out of the national peasant group UNORCA. The other national group is UNOFOC --the National Union of Peasant Forestry Organizations, affiliated with the government and ruling Institutional Revolutionary Party (PRI). UNOFOC is composed of several of the largest and most successful CFE's (including Nuevo San Juan) which have benefited from federal credit and financial support. The tensions between these two interest groups likely played a role in the drastic reduction of FONDEFOR's scope, as UNOFOC perceived the program to be mainly directed at the constituency of MOCAF.⁵⁵

In designing this program, SEMARNAP faced a problem: what could be done, within the legal constraints of NAFTA and GATT, to protect the social forest sector from their harmful effects? Under the rules of GATT, Mexico is allowed to raise tariffs on selected products for an emergency period, but this proposal was vetoed by representatives of the private forest industry in a national consultative process. Direct subsidies or price supports to forest producers, which are tied to the quantity of wood produced, would almost certainly be overturned by GATT or NAFTA panels as a barrier to trade. In the long term, it may be possible to raise the issue of U.S. and Canadian forest industry subsidies in those same panels.

For the present, however, the government can give direct economic support to the forest sector, as long as it is not directly linked to the volume of timber production. This is reflected in the design of FONDEFOR. In fact, with the Zapatista rebellion in Chiapas as a backdrop, the architects of FONDEFOR seem successfully to have sold the program to the executive primarily as a social development project, necessary to forestall social conflict (and also combat drug trafficking) in impoverished forested regions. This may partially explain the acceptance of a policy which, at least initially, involved the state heavily in supporting rural producers, running directly counter to the dominant neoliberal trend.

Conclusions

Community forest management grew and thrived in Mexico in fairly supportive political and economic conditions during most of the 1980's, but exposure to open markets and the reduction of the state's role in the forest sector are threatening many CFEs' ability to manage forests sustainably. Squeezed between wood imports and clandestine logging, CFE's in the Meseta Purepecha and elsewhere are calling for structural changes to make it less of a liability, and more of a benefit, to be careful stewards of the forest.

⁵⁵ G. Chapela 1994

The motto of the FONDEFOR program is "*poner los bosques en manos de sus dueños*"-- putting forests in the hands of their owners. Even if this policy initiative were to be more fully funded, its success at promoting and protecting social sector forestry would depend in part on the vigilance of forest communities and their organizations. Other large social development programs, such as National Solidarity (PRONASOL) and PROCAMPO are widely viewed as good ideas that were corrupted and became vehicles for the political aims of the government party.⁵⁶ Yet in the absence of meaningful action to address rural poverty in forest regions, the lack of economic options for campesinos will continue to work against forest health. Meaningful solutions to forest degradation will involve long-term partnership with Mexico's social sector forest communities, address the extra burdens they assume for investing in the health of their forests, and find ways to make it much "easier to be good."

⁵⁶ F. Chapela 1995

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	NUEVO SAN JUAN PARANGARICUTIRO	CHERAN	ANGAHUAN
Population ++ (1995, except Cherán 1983)	9,000*	17,042 k	4,000*
Heads of Households +++ (1995, except Cherán 1983)	1,127 a	2,840 k	600*
% of Pop. Speaking Purépecha Language (1990)	2%*	62%	90-95%*
Land Area (hectares)	18,138 a	20,713 h	7,056 h
Forested Area (1994)	11,852 a	11,090 g	3,459 g
Forested Area (1982)	10,952 a	15,837 h	4,300 h
Condition of Remaining Forests	very good	very good	poor/degraded
Type of Organization for Forest Production	<ul style="list-style-type: none"> • Large, Vertically Integrated CFE • Family Packing Crate Workshops (supplied through CFE- -all legal wood) 	<ul style="list-style-type: none"> • CFE; • Illegal Logging; • Family Furniture Workshops (illegal and CFE wood) 	<ul style="list-style-type: none"> • Illegal Logging; • Family Packing Crate Workshops (all illegal wood); • (nascent CFE for wood chips only)
Main Products (all pine except where noted)	<u>CFE:</u> fine furniture sawnwood kiln-dried lumber pallets fruit packing crates moldings (oak, pine) broom handles (oak) wood chips turpentine/resin	<u>CFE:</u> sawnwood wood chips turpentine/resin <u>Workshops:</u> rustic furniture doors, posts	<u>Workshops:</u> fruit packing crates <u>CFE:</u> wood chips
	NUEVO SAN JUAN PARANGARICUTIRO	CHERAN	ANGAHUAN

Markets	Regional National International	Regional National	Regional
Number of: a, f Sawmills Band-Saw Mills (family operated) Kilns Chip Mills Resin Distillery	2 23 2 1 1	1 33 1 1 1	0 65+ 0 1 0
# Employed by CFE	600-800 a	30-40 j	5*
# Employed in Clandestine/Illegal Logging	0	100*	300-350*
% of Population Dependent on Forest Production	60%*	30%*	70-80%*
Level of Clandestine/ Illegal Logging	virtually none	moderate to severe	severe
Authorized Timber Cut Level (1994)	104,000 cubic meters (m ³) a	10,200 m ³ d	4,000 m ³ d
Timber cut by CFE (1994)	104,000 m ³ a	10,200 m ³ *	1,000 m ³ *
Timber cut by Clandestine/Illegal Operations (1994)	0	17,900 m ³ f**	23,300 m ³ f
Total timber cut (1994)	104,000 m ³	28,100 m ³	24,300 m ³
Value-added Prod'n (beyond sawnwood)	Very Significant	Significant	Small
	NUEVO SAN JUAN PARANGARICUTIRO	CHERAN	ANGAHUAN

Main Forest Problems	Disease	Fire Illegal Logging	Forest Degradation Illegal Logging Fire
CFE Sales (1990)	US \$ 4,997,141 ^a	NA	NA
CFE Profits (1990)	17% of sales ^a	NA	NA
CFE Profits (1994)	5% of sales ^a	NA	NA
CFE Profits (1995)	1 % of sales*	NA	NA
Integration with Nat'l or Int'l Markets	High	Moderate	None
Degree of Negative Economic Impact from Trade Liberalization	High	Moderate to High	Low to None

CFE: Community Forest Enterprise

NA: Statistic not available

*: Estimate

**: Actual extraction appears to be much higher.

++: Population data for indigenous communities is not calculated by government agencies.

+++: Figure includes only officially registered *comuneros*.

Sources:

^a Sánchez Pego 1995

^b INEGI (National Institute of Geography). 1990. *XI Censo de Población y Vivienda*.

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