

## Toward 'post-REDD+ landscapes' Mexico's community forest enterprises provide a proven pathway to reduce emissions from deforestation and forest degradation

David Barton Bray<sup>1</sup>

### Key points

- Regions where community forest enterprises dominate the landscape have low to non-existent deforestation, sustainable forest management, enhancement of carbon stocks, forest conservation and substantial generation of sustainable livelihoods. Corruption and deforestation are also associated with some Mexican forest communities, but these regions have created a sector with hundreds of well-managed community forests that contribute to the mitigation of, and adaptation to, climate change.
- Some 60–70% of Mexican forests are now owned by communities. Forests and land redistribution to local communities that began with the Mexican Revolution (1910–1917) continued until 1992, with a major surge from 1958 to 1976.
- The agrarian and forest tenure reforms in Mexico served as a foundation for village-level democratic decision-making around forest management. This model clearly defines rights holders and the agricultural and forest territory that they own.
- Mexico experienced a period of industrial logging concessions on community lands, but both government and communities sought reform in the 1970s, so that timber rights and greater authority over forest management devolved to communities.
- Mexican forest laws in recent decades have frequently provided a supportive policy environment for community forestry.
- An estimated 2300 communities regularly log under management plans in Mexico. Mexican community forest enterprises with forest common properties operate at all levels of this vertically integrated industrial sector.

### Introduction: Mexico's community forests as a global model

Policies promoted under the banner of reducing emissions from deforestation and forest degradation (REDD+) propose to achieve that goal in combination with the conservation or sustainable management of forests and enhancement of forest carbon stocks, through the establishment of robust markets for forest carbon. The proposal, like many previous forest valuation strategies, assumes that the development of markets for the payment of carbon capture services will make the forests more valuable standing than fallen for agriculture or timber. This is a goal worth pursuing, as the attention now given to REDD+ demonstrates, and carbon markets will likely achieve this end over time.

However, there are existing policies and practices that have already proven their ability to reduce forest loss, conserve forests through protection and sustainable management and enhance forest carbon stocks. These strategies need to be affirmed and combined with emerging forest carbon markets to optimise the global search for better planetary forest management. One of the best-known strategies is the establishment of public protected areas (PAs) (Chape *et al.* 2008), but it tends to be more focused on conservation and protection, with local livelihoods relegated to a secondary interest or even ignored completely (Cernea and Schmidt-Soltau 2006).

By contrast, community forest management (CFM), in some circumstances, has shown that it can meet all of

1. David Barton Bray is Professor in the Department of Earth and Environment at Florida International University, Miami, Florida, USA. He is on sabbatical leave during 2010–2011, affiliated with the Center for Interdisciplinary Research on Integrated Rural Development (CIIDIR-Oaxaca) in Santa Cruz Xoxocotlan, Oaxaca, Mexico.

the goals articulated by REDD+ whilst at the same time generating sustainable local livelihoods for forest-based peoples and conserving biodiversity. Unfortunately, most CFM and other forms of community-based natural resources management have devolved limited rights to limited resources, with, not surprisingly, limited results (Menzies 2007, Dressler *et al.* 2010). In contrast, in Mexico the experience of CFM is characterised by the devolution of successively expanded property rights, especially timber rights, over sometimes large forests, combined with community-level governance institutions that mobilise social capital and an intermittently supportive policy environment. This combination, along with factors such as emigration and reduced land use pressures, has resulted in regions of the country where deforestation and degradation are non-existent, forest cover and forest stocks have expanded, vigorous community democracy flourishes, options for sustainable livelihoods exist and biodiversity is conserved. In sum, there are regions of Mexico that already resemble the anticipated outcome of successful REDD+ projects.

This infobrief summarises the evidence for these assertions and how a successful model evolved through the combination of an agrarian revolution early in the 20th century with community mobilisations and, beginning in the 1970s, pro-community forestry government policies. It illustrates how the democratisation of forest governance and forest natural capital can produce striking gains in healthy forests for production and conservation and in communities with employment options that can reduce, although not eliminate, emigration. Mexico's community forestry enterprises (CFEs) are based on a forest common property created by state policy. Mexico's experience demonstrates that the reinvention of this alternative form of economic organisation can overcome institutional roadblocks to the redesign of forest governance in an era of climate change (Beddoe *et al.* 2009).

## Mexico's community forest enterprises

The Mexican model is based on nucleated communities of well-defined rights holders who now have a nearly complete bundle of property rights over a given territory and its forests. These communities have evolved, over 3 decades, from CFEs being based entirely on the commercial production of timber, to increasing diversification into other forest-based industries such as ecotourism, water bottling and payment for environmental services. These CFEs are governed by

innovative blends of community authority established by (1) agrarian law, (2) millennial traditions of community rules and (3) new organisational forms to administer competitive market-based enterprises—what has been called 'the community as entrepreneurial firm' (Antinori and Bray 2005). Government financing has been occasionally helpful in this process, but for communities with forests larger than around 3500 ha, the value of timber is such that they can be significantly self-financing.

There is a great need for ongoing monitoring of the magnitude and status of Mexican community forestry, but recent studies suggest that there are around 2300 communities with legal logging permits harvesting timber on some 8.1 million ha of forest, mostly temperate pine and oak forests (Anta 2007, Bray *et al.* 2007). Many of these CFEs have small forests and may only harvest once every few years. In others, corruption and forest degradation occur. However, there are hundreds where collective action around the forest commons has created forest enterprises where forests are transparently and sustainably managed, and that generate varying amounts of income for impoverished communities (Bray *et al.* 2007). In total, 31 communities with 717 424 ha have been certified by the Forest Stewardship Council (FSC). However, this represents a significant underperformance given the size of the sector.

The 8.1 million ha under management plans for logging is only the tip of the iceberg in terms of community forest holdings. Studies suggest that this is less than 25% of the total forests in community hands, and there are reasons to believe that a significant portion of the remaining 75% is under varying degrees of protection by community rules (Dalle *et al.* 2006). Although exact figures have yet to be established, it is now estimated that around 60–70% of all Mexican forests are managed by communities.

The successes in community collective action around forest commons are particularly evident in the figures on vertical industrial integration of the CFEs. A typology developed by the Mexican government included: 'Type I' communities, with potentially commercial forests but which were not currently harvesting; 'Type II' communities, which contracted with outside loggers to carry out most harvesting tasks, with varying degrees of community supervision; 'Type III' communities, which have acquired log extraction equipment such as chainsaws, tractors and trucks; and 'Type IV' communities, which have sawmills. A 2007 study based on figures from 1991–2002 suggested

**Table 1. Mexican community forestry at a glance**

Number of communities with legal logging permits (1992–2002):	2300 (many may log only occasionally)
Hectares under management plans:	8.1 million
Percentage of national forests owned by communities:	60–70%
Number of communities certified by FSC (as of October 2010):	31
Number of FSC-certified ha (as of October 2010):	717 424
Number of community forest enterprises that log regularly by level of vertical integration (1992–2002):	Type IV (sawmills): 163
	Type III (extraction equipment): 436
	Type II (contract with outside loggers, frequently with community supervision): 640

Sources: Anta 2007, Bray *et al.* 2007, <http://www.fsc.org/>

that there were 640 Type II CFEs (average size of forest under management plan 922 ha), 436 Type III CFEs (average size of forest 1553 ha) and 163 Type IV CFEs (average size of forest 3503 ha)<sup>2</sup> (Bray *et al.* 2007). There are fewer Type IV communities, perhaps 15–20, usually with commercial forests larger than 10 000 ha, which employ hundreds of community members, have mature, stable, diversified forest industries and which may compete in international markets (Bray 2010b). At the other extreme are communities with forests of 300–400 ha that have successfully managed their forests for timber for decades, although with modest economic returns. The varying degrees of vertical integration are tightly associated with increasing transaction costs in organisation, and show an enormous capacity among communities to develop new forms of organisation and new institutions when property rights are in place and the incentive of valuable forests is present. In a world where the number of local communities that can successfully manage their forests for timber is still quite small, these numbers show what is possible when the right conditions are in place.

### **Community forest enterprises for timber production stop deforestation and enhance carbon stocks**

The 1960 and 1970s were periods of rapid tropical deforestation in Mexico, with rates in some subregions and forest types higher than 10%, due to both assisted and spontaneous colonisation of lowland tropical areas.

2. The average size of forests is based on a smaller sample because of missing data (Bray *et al.* 2007). As indicated above, the forests under management plans are usually much smaller percentages of the total forests held by the communities. For example, Type IV communities may have more than 15 000 ha of total forest cover.

National rates for the 1976–2000 period have been estimated at 0.76% for tropical forests and 0.25% for temperate forests (Mas *et al.* 2009). However, evidence suggests that rates began to decline more sharply in the 1990s, with FAO figures showing a decline from a rate for all forests of 0.52% in 1990–2000 to 0.24% in 2005–2010 (FAO 2010). This decline is important, but it also masks the fact that deforestation and degradation continue in many regions. Although some previously deforested tropical areas are now showing clear trends of forest recovery, some ‘temperate deforestation hotspots’ have also emerged (Bray 2010a). There are many reasons for the decline of deforestation in Mexico, including outmigration and agricultural abandonment and the end of directed colonisation. However, it also seems clear that the widespread presence of CFEs in Mexico has been an important contributing factor, in both temperate and tropical areas. Where CFE experiences are mature, deforestation is low or forests are actually expanding.

A new national study of 733 municipalities in 8 states with at least 50 ha of coniferous forests found that municipalities with higher percentages of commonly owned forest and higher percentages of common forest under management plans ‘both reduce the gross and net rates of deforestation and increase the rate of forest recovery of coniferous forests’. It is also notable that this effect did not hold for non-coniferous forest, showing that forests are conserved when they are valued for their timber (Barsimantov 2009).

Studies of deforestation and community forestry in Mexico frequently make a comparison to PAs in Mexico, because these are expressly designed to conserve forests, which is not the case with community forests. These studies, with both regional and national scopes, consistently show that

communities with forestry enterprises perform similarly to PAs with respect to forest cover, in both temperate and tropical areas. For example, a study of 2 CFE-dominated regions in temperate Guerrero and tropical Quintana Roo found that over a 20-year period they had retained 95.1% of their forest cover; a national sample of PAs had retained 98.8% of their forest cover, over a shorter period (Duran *et al.* 2005).

Studies of CFE forests in the Yucatan Peninsula with comparisons to PAs in southern Mexico have shown they perform better than PAs. A region of central Quintana Roo dominated by community forest production has the lowest recorded rate of deforestation in southern Mexico, which is also lower than recorded studies in PAs in the region (Bray *et al.* 2004). A more specific comparison between this same region and a part of the Calakmul Biosphere Reserve found that the region of the biosphere reserve had a deforestation rate of 0.7% from 2000 to 2005 whilst the Quintana Roo community forestry region had a very low rate of 0.002% from 2000 to 2004, even though the Quintana Roo region had twice the population density. The authors found that 'forest conservation or maintenance was shown to be influenced by local community forestry institutions and a landscape zoning provided by larger management goals on the part of the communities' (Ellis and Bolland 2008).

Deforestation rates in most parts of the state of Oaxaca in southern Mexico have been high in recent decades, but the pine-oak forests of the Sierra Norte region, which is dominated by many highly diversified CFEs, has shown a 3.3% expansion of forest cover in its pine-oak forests over a 20-year period (Gomez Mendoza *et al.* 2007). Further north, in the states of Michoacan and Mexico, the Monarch Butterfly Biosphere Reserve had a deforestation rate of 2.41% from 1984 to 1999 (Brower *et al.* 2002). However, the few islands of forest cover maintenance that exist in the region are those of communities that are logging their forests with legal permits (Merino Perez and Hernandez Apolinar 2004).

## Many forest communities and CFEs are conserving forests

Mexican communities also appear to have informally placed large areas of forest under varying degrees of protection to guard water sources, as wildlife refuges, because of inaccessibility or because relatively low population densities mean these areas are not needed for agricultural production or other uses. For example,

the study by Barsimantov (2009) of 733 municipalities in 8 states showed that whilst 62.8% of coniferous forests were owned by communities, only 9.6% is actually being logged and deforestation rates were low in those forests (although higher in the non-commercial, non-coniferous forests).

Recognition of community conservation or 'indigenous/community conserved areas' (I/CCA) (Borrini-Feyerabend *et al.* 2004) is also increasing in Mexico. One estimate suggests that communities are voluntarily conserving more than 640 000 ha (Anta 2007), although the figures in the preceding paragraph suggest that the real figure is much higher. In May 2008, the Mexican Congress passed new legislation approving a certification process that allows I/CCAs to be formally recognised as part of the federal PA network. To date, the National Natural Protected Areas Commission (CONANP) has certified 221 areas covering 274 151 ha, although this figure also includes some private protected areas ([http://www.conanp.gob.mx/que\\_hacemos/areas\\_certi.php](http://www.conanp.gob.mx/que_hacemos/areas_certi.php)).

One outstanding example of I/CCAs in southern Mexico is a 6-community organisation, the Natural Resource Committee of the Upper Chinantla (CORENCHI), in the Sierra Norte of Oaxaca. These communities have established more than 27 000 ha—79% of their total combined territory—as CCAs, protecting cloud forest and montane tropical forest with high degrees of biodiversity. Several exercises in systematic conservation planning have also revealed that community-dominated regions such as Sierra Norte, particularly its pine forests, harbour very high biodiversity and provide important habitat for mammal conservation, especially endemic species. Although some ecologists have called for greater protection measures in these forests (Brandon *et al.* 2005, Illodi-Rangel 2008) it is apparent that the current high degree of biodiversity has been maintained in landscapes dominated by communities for centuries. Nonetheless, the challenge for these communities is finding ways to use conservation to generate income to help them move out of poverty. As most REDD+ proposals assume a baseline of deforestation, it is not clear how communities that are already doing the 'right thing' (in terms of sustainably managing and conserving their forests) can be rewarded. Mexico's internationally recognised payment for hydrological services programme has partially filled this gap, with some 600 000 ha enrolled as of 2006 (Muñoz-Pina *et al.* 2008), but many efforts at community conservation are not receiving any form of external support.

Table 2. The history of Mexican community forestry

Year	Event	Remarks
1910–1917	Mexican (agrarian) Revolution	Inspired by large-scale dispossession of small-scale farmers
1920–1992	Redistribution of state and private forestlands	Occurred at varying rhythms over the period, with major land redistributions from 1934–1940 and 1958–1976
1934–1940	Promotion of forestry cooperatives	Mostly unsuccessful and quickly disappeared
1940s–1970s	Promotion of private and parastatal forest concessions, logging bans.	Despite formal community access, Mexican Constitution allowed state control over community forests
Early 1970s	Beginning of government efforts to devolve more control over logging to local communities	Focused mostly on Chihuahua and Durango; many community sawmills established, but could only sell to concessionaires
1976–1986	Pilot efforts in several states to develop community forest enterprises	Government-led efforts in Puebla, Guerrero, Oaxaca, Quintana Roo and elsewhere
1980s	Grassroots community mobilisations against renewal of concessions	Community protests in Guerrero, Oaxaca, Quintana Roo and elsewhere helped end concession period, opened door to community control
1986	New Forest Law	Consolidated gains of previous decade, gave communities new authority over logging in their forests; formal end of concession period
1992	Reform of Article 27 of Mexican Constitution	Extinguished state claims to community timber, gave all ownership rights to forests except alienation
1994–2000	New government programmes supporting community forestry	Renewed attention by government to community forestry with the establishment of PROCYMAF and PRODEFOR
2000–2010	Expanded budgets for community forestry	Budgets have increased by hundreds of percent, much of it for reforestation

## Devolution of forest rights and structures of community governance

The Mexican model of community forest management evolved throughout the 20th century. It is based on a redistribution of forestlands to local communities, strong community governance structures, a process of social learning to establish a culture of industrial forestry and supportive, although at times inconsistent, government policies. The Mexican Revolution (1910–1917) led to policies of land and forest redistribution from government and private hands that lasted from 1920 to 1992, although there were key bursts of land distribution in the 1930s and from 1958 to 1976. Many successful CFEs today received their forestlands from the government as recently as the 1970s. The Mexican common property system, in some ways similar to the Chinese agrarian reform that followed, established a massive, state-directed form of forest common property, although in the context of a capitalist economic system.

A significant feature of the reform process was the establishment of agrarian communities with fixed rights holders over a defined territory. This included 2 types of

communities authorised under Article 27 of the Mexican Constitution, both inspired by Mexico’s indigenous past. These are *ejidos*, established for dispossessed and landless farmers, and *comunidades*, which gave new legal status to indigenous territories recognised by the Spanish Crown during the colonial period. The agrarian laws also established a structure of community governance across rural Mexico (Bray *et al.* 2006). In earlier decades, government supervision was heavily paternalistic, but in more recent times communities have gained substantial autonomy in governing the forest commons. The governance structure includes an assembly of all legally defined rights holders and a democratic process for electing community leaders every 3 years. Whilst this governance structure can easily be corrupted by dishonest leaders, the strong incentive provided by access to valuable forests has encouraged broad community participation, the establishment of rules through community statutes, vigorous monitoring and clear sanctions for rule-breakers. Thus, this governance structure contributed important social capital in relation to many traditional communities, in a world where traditional authorities and governance are ill equipped for the new demands

being made of them. Furthermore, most Mexican communities had at least limited experience with markets, which is also less the case in some parts of the world.

Nevertheless, for most of the 20th century the communities had only long-term usufruct use over the territory, and community forests were controlled by the government. An initial effort to establish forest cooperatives began in the 1930s but did not survive long. This was followed, from 1940 to the early 1980s, by a period of logging concessions to parastatal and private logging enterprises in some regions and logging bans in others, where deforestation was already perceived as a problem. During this long period, communities received only stumpage fees for logging in their forests, and community control was not on the policy agenda.

However, in the early 1970s reform-oriented government officials began promoting sawmills in communities in northern states, although the communities were always required to sell to the concessionaires. Later in the 1970s and early 1980s, reformers began to promote a form of CFE in central and southern states that were not under industrial concessions. In the early 1980s, these efforts at reform by some sectors of the government were joined by community mobilisations and protests in Guerrero, Oaxaca, Quintana Roo and other states against a renewal of the concessions. The protests were successful and the concession period ended across Mexico in the early 1980s, opening the way for the consolidation of CFEs. In the later period of the concessions, communities were increasingly involved in the production process, which gave them a training period to learn industrial forestry. In 1986, many of the reforms of the previous 10 years were consolidated in a new forestry law that for the first time granted communities autonomy in organising themselves and contracting forest technical services.

The transition from state-led to community-led forestry was further consolidated by a 1992 reform to the Mexican Constitution that gave communities a near-complete bundle of rights over their forests, ending government claims to the timber. The only right that was not devolved was that of alienation; communities cannot privatise or sell their forests, and all forms of commercial extraction are regulated by environmental laws. During the past 2 decades, institutions of community governance have been elaborated and extended in innovative ways to administer CFEs (Antinori and Bray 2005, Bray *et al.* 2006), and cultures oriented around sustainable industrial logging have emerged (Bray 2010). In 1994, after a period of policy

neglect, Mexican government policy established 2 new programmes to support community forestry: the World Bank-supported Program for Conservation and Forest Management (PROCYMAF) and the Program for Forest Development (PRODEFOR). The subsequent period has seen an expansion of funding for forest management and continued support for community forestry.

## **Mexican community forest enterprises, REDD+ and climate change**

The global attention now being directed towards REDD+ as a strategy for combating carbon emissions due to deforestation and forest degradation is focused on increasing the value of forests through carbon markets. This is crucial and must be pursued. However, forest carbon markets are still incipient and await the conclusion of global climate accords before they can flourish. The Mexican experience demonstrates that the same goals—reduction of deforestation and forest degradation, expansion of forest cover, conservation of forest and biodiversity—can be achieved through CFEs, particularly for commercial timber production. CFEs also generate thousands of jobs for local communities, something that PAs have generally not been able to do. The potential of Mexican community forestry to contribute to climate change mitigation has been recognised for some time (Klooster and Masera 2000). A comprehensive study of the potential for carbon sequestration by different land uses in Mexico found that the ‘most cost-effective method for sequestering carbon appears to be the improved management of natural forest on communal lands’ (De Jong *et al.* 2000). If REDD+ can develop mechanisms to encourage the successful existing models of climate change mitigation and adaptation seen in CFEs, this will indeed be a ‘plus’.

Today, there are many calls for clearer rights over forests and their products and services, particularly carbon (Corbera *et al.* 2010). Although considerable attention is being directed towards the international architecture of REDD+ policies, the next immediate step will be to focus on the institutional reforms necessary to make REDD+ work on the ground. Key factors in Mexico’s relative success are clear rights over all forest products (especially timber), the establishment of formal community governance mechanisms, relatively large commercial forests, access to training or experience in industrial forestry and a supportive policy environment at multiple scales. The Mexican case may thus be more relevant for countries with large forest masses inhabited

by communities, such as Indonesia, the countries of the Amazonian Basin and Central Africa, than countries where community forests tend to be small and regenerating, such as India and Nepal. However, it is possible that countries in which the appropriate conditions are in place can also achieve the 'post-REDD landscapes' evident in some regions of Mexico.

The Mexican experience makes the case that effective models for restoring global forest cover will depend on community forest common properties being made a foundation of reforms. Common property represents a 'third way' of economic development and forest rights, beyond just public and private; when forest resources are large enough, the incentives are present for concerted collective action to retain forests for their multiple values. The economists Samuel Bowles and Herbert Gintis have made the case for communities by depicting them as:

modern governance structures whose patterns of proliferation, diffusion, decline, and extinction are regulated by contemporary processes. Far from being vestigial anachronisms, we think communities may become more rather than less important in the nexus of governance structures in the years to come, since communities may claim some success in addressing governance problems not amenable to market or state solution (Bowles and Gintis 1998).

Markets and states are still struggling to find the right formula for saving the world's forests from further decline and to prevent dangerous warming of the Earth's atmosphere. Mexican forest communities and their enterprises can certainly claim some success in addressing that problem. It is time to expand the model, both within Mexico and globally.

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