



SUSTAINABLE FOREST MANAGEMENT AS A STRATEGY TO COMBAT CLIMATE CHANGE: COMMUNITIES SHOW THE WAY.

PRESS SUMMARY





Sustainable Forest Management as a Strategy to Combat Climate Change

"Forests cannot be protected by remote control"

A member of the Capulalpam de Méndez community, in the state of Oaxaca, Mexico.

We believe that everyone involved in climate change negotiations - governments, communities, non-government organizations and the private sector - should learn about the role of community forest management, because it is arguably the best option for reducing forest emissions and generating a better future for the world's forests and their inhabitants. What follows is a summary of the lessons provided by Mexico's experience in community management as we consider alternatives for the future of the forests.

A study to be released next week by the Mexican Civil Council for Sustainable Forestry (CCMSS) and the Rights and Resources Initiative (RRI) presents new research and analysis demonstrating how community forest management in Mexico has become a powerful instrument to achieve forest conservation, while at the same time improving local livelihoods. The authors of this document propose that under the current international efforts to reduce emissions from forest deforestation and degradation, community-based forestry should be taken in account as one of the best options to mitigate CO₂ emissions.



Summary Points

- The conservation of forests and the sustainable use of forest resources depend on the health of the local institutions used by communities to govern their commons. The strength of these institutions is based on the rights and incentives of forest users, and it requires adequate social organization and a shared vision between forest users and other stakeholders.
- Under favorable policy conditions and with the right incentives, communities can effectively manage their forests, both socially and economically.
- Forest communities can be responsible forest stewards, helping to protect key ecosystem services, such as carbon stocks and biodiversity, and mitigating the impact of natural disasters related to climate change. These communities also use the forest to generate goods and services that enhance their lives and livelihoods.
- In studies of the four major management regimes for forests: sustainable management, state protection, industrial plantation and reforestation, the system of sustainable management shows significantly more capacity for CO₂ capture and storage.
- Since Mexican forests are responsible for 12.44% of the nation's CO₂ emissions, forest management is the most important carbon emissions reduction strategy for that country, because it also provides benefits to Mexican rural communities.
- The Mexican model of community forest management (CFM) is based on the devolution and recognition of rights over all forest products including timber, the establishment of community governance within a clear legal framework and the enabling of community forest enterprises with communal ownership. The framework has been strengthened by community mobilizations in crucial periods and by generally positive governmental forest policies since the 1970s.
- The emergence of modern Mexican community forestry has evolved over several decades. While legislation, government policy and programs have been rather inconsistent at times, they have been key to enabling the local communities who have been the direct protagonists of this locally controlled forestry.
- Other forested countries of the developing world are moving to provide the necessary tenure and governance conditions for adopting forms of community-based forestry.



Community Forests of Mexico: Experiences for Climate Change Mitigation

Climate change is one of the main challenges facing humanity in the 21st century, since it threatens not only economic and social stability, but may permanently modify the resource base and ecological processes that sustain life on the planet. This situation has forced countries to design and implement mitigation and adaptation strategies to meet greenhouse gas (GHG) emission reduction targets.

Forests play a fundamental role in strategies to combat climate change, since they store an estimated total of 638 Giga tons of carbon (GtC), much more than what is currently present in the atmosphere. If properly managed, these forests can maintain their cover and thus capture and store carbon at an annual rate of 2.4 GtC.¹

Mexico is one of the important forested countries of the world. While it has been active in recent decades at stopping deforestation and forest degradation, and has slowed the net deforestation rate, the country is still losing its forests at an estimated annual rate of .24 %. This is the equivalent of releasing approximately 89 Megatons of CO₂ equivalent (MtCO₂e) every year. These emissions, which constitute Mexico's third-highest source of GHG, represent 12.44% of the country's overall emissions and exceed those derived from oil and gas exploitation.² If Mexico were able to stop deforestation and manage its forests sustainably, it could capture up to 46 Million tons of carbon annually over the next 25 years.³

This paper argues that meeting this goal will require that the nearly 12 million people who live in Mexico's forested areas build conservation and sustainable use

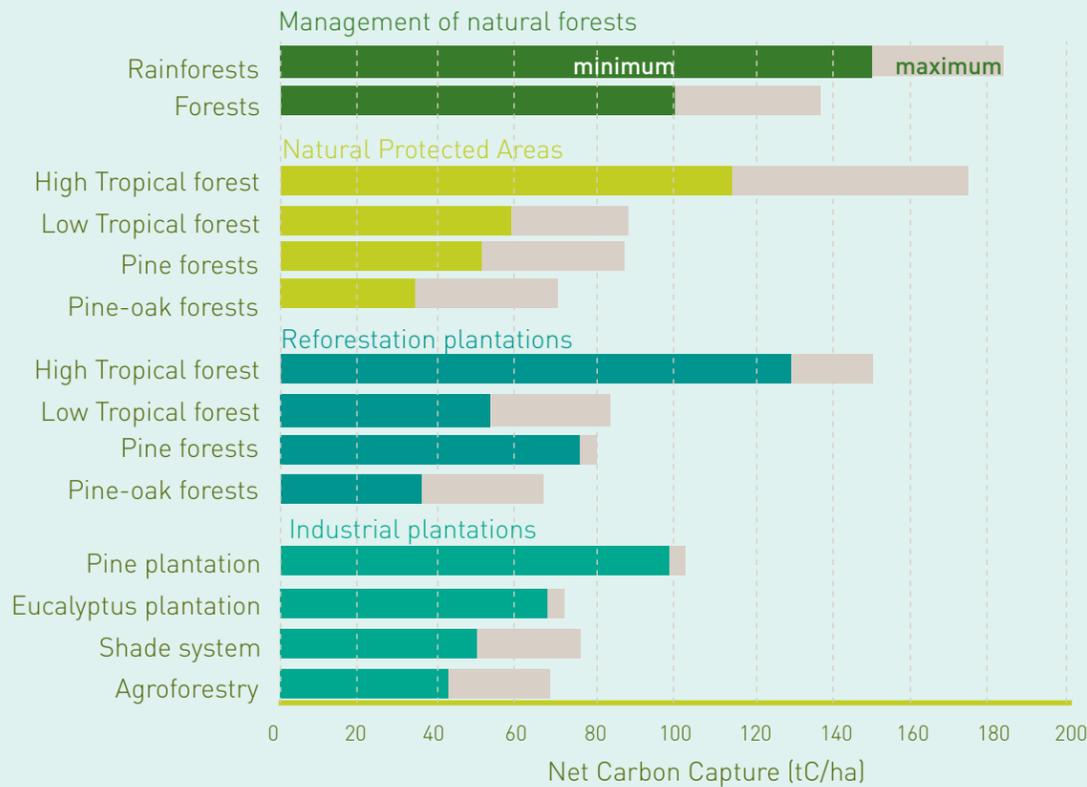
efforts while finding and creating new opportunities for economic growth and development. In many Mexican forests, sustainably managed timber production is the best way to capture carbon and lower CO₂ emissions, because this practice can:

- Conserve and enhance forest cover, thus sustaining carbon stocks;
- Expand new capacity for capture and storage to degraded lands;
- Maximize carbon capture through a better management of age pyramids of forest populations;
- Create wood products that store carbon for long periods of time;
- Generate economic incentives for local communities to conserve forest cover; and
- Provide permanent control of pests and forest fires and mitigate climate change impacts by maintaining the range of some key commercial species.



The graph presented below is based on detailed studies on the capacity of forest to capture CO₂ under four predominant management regimes: a) sustainably managed, b) state-protected areas, c) plantations and reforestation and d) industrial plantations. The comparison shows that forest types under sustainably managed regimes have significantly more capacity for CO₂ capture and storage than those under the other three. While the capacity of natural protected areas may approach that of sustainably managed areas in some models, managed regimes have a higher degree of certainty.

Carbon capture potential by mitigation option in Mexico



	Management of natural forests		Natural Protected Areas				Reforestation plantations				Industrial plantations			
	Rainforests	Forests	High Tropical forest	Low Tropical forest	Pine forests	Pine-oak forests	High Tropical forest	Low Tropical forest	Pine forests	Pine-oak forests	Pine plantation	Eucalyptus plantation	Shade system	Agroforestry
Minimum capture	148	98	113	57	50	33	128	52	75	35	97	67	49	43
Maximum capture	182	134	173	87	86	69	150	82	79	66	101	71	74	68

Note: Net capture figures are for information purposes and are estimated by calculating the difference between carbon stocks in the mitigation option and total carbon in the alternative land use. For simplicity sake, this case assumes that the alternative use in all cases is agriculture. A complete analysis of the potential can be reviewed in Masera, O., B. H. J. De Jong, I. Ricalde y A. Ordoñez (2000). Consolidación de la Oficina Mexicana para la Mitigación de Gases de Efecto Invernadero. Reporte Final. Mexico: INE-UNAM.

Source: CCMSS with information from De Jong, Bernardus H.J., Omar Masera and Thomas Hernández-Tejeda (2004) "Opciones de captura de carbono en el sector forestal", in Cambio Climático: una visión desde México, Instituto Nacional de Ecología, Mexico.

Managed forests in Mexico occur mostly on community forestlands, where the community's direct control over the ecosystem also provides multiple benefits including biodiversity conservation, and contributes to local development.

The sustainably managed forest's capacity to capture more carbon can be explained in the following way. First, while the forest is growing, carbon is captured in the trees; after they are harvested, the carbon remains stored in the wood products that are removed from the forests. The growth of new trees in the harvested areas captures new carbon. When this process happens repeatedly over time, the overall amount of carbon sequestered by live forests and subsequently stored in wood products is greater than that which can be captured by a natural forest under conservation, where trees are not removed.

These studies also show that the complexity of the sustainably managed forest provides a wider degree of ecosystem services. From the trees to the microscopic wealth of the soil, complex interactions between the biotic and abiotic components of the ecosystem increase the capture of CO₂. Over time, forest preserves capture less carbon than managed regimes because there is no removal of stored carbon in the form of finished wood products from these natural preserves.

Forest plantations, meanwhile, tend to be monocultures that minimize the ecosystemic complexity needed to create the interactions that increase the capture of CO₂.



Options for Stopping Deforestation and Forest Degradations: Why Community Forest Management Works Best

The Mexican case shows that the establishment of formal rights over forests, especially timber, combined with clear and legally supported forms of community governance, can measurably reduce deforestation and degradation of forests. In a mature community forest management system such forests help avoid deforestation and enhance carbon stocks. The model needs continued evaluation as to its strengths and weaknesses, but the evidence is sufficient to argue for the expansion of the model to smaller and more degraded forest areas, both in Mexico and beyond.

Internationally, Mexico is seen as paradoxical; a country with a global model of well-managed community forestry yet high deforestation. But Mexico's historically high deforestation rates have been dropping in recent years, partly due to agricultural abandonment, partly to the halting of large-scale tropical colonization, but also because of the maturation of community forest enterprises in many regions, even in the absence of carbon markets.

The U.N. REDD (Reducing Emissions from Deforestation and Forest Degradation in Developing Countries) programs are premised on the development of forest carbon markets that will make forests more valuable for their standing timber and carbon sequestration capacity than for the soil underneath them. But there are other options while the world waits for forest



carbon markets to develop. The best-known of these is the creation of public protected areas, but these have had only limited success in stopping deforestation, and they often restrict the traditional access of local communities to forest resources. Campaigns to halt illegal logging have had some success, but frequently have unforeseen negative consequences for local communities. Definitions of legal and illegal harvesting are often unrealistic, or penalize the poorest forest dwellers. Globally, community forest management has demonstrated that when forest rights are recognized, forest cover and carbon stocks are enhanced along with local livelihoods.

In the Mayan forests of Guatemala and Mexico, for example, community forestry has been just as effective as public preserves in protecting forest cover. It has been more effective at delivering local benefits.⁴ In the Brazilian Amazon, indigenous territories

have proven the equal to protected areas or stronger in their ability to stop deforestation in advancing colonization fronts than PAs.⁵ We see a global opportunity in forest cover owned or administered by local communities, which in developing countries has expanded to 26% of forest land. In many respects, Mexico has been a global leader in devolution of forest rights to local communities, and thus its experiences in commercial timber and non timber production, diversification of forest industries, and community conservation are relevant both nationally and globally.

The evolution of Mexican forest policy and the community mobilizations that supported this success will be more extensively reviewed in the next section. This historical process has resulted in the existence of about 2,300 community enterprises that harvest forests legally for timber. Around half of these enterprises produce timber on a regular basis under government-approved management plans. A 2007 study of the ten most important Mexican

forest states suggested that 163 communities managed sawmills, 436 managed extraction equipment, and another 640 managed their logging through outside contractors, with varying degrees of community supervision. Of the communities with their own sawmills, 20-25 could be considered "super-community forest enterprises" in that they generated hundreds of jobs and had sophisticated and diversified forest industries, with some even competing in foreign markets. More than 1,200 communities have been able to organize themselves at varying degrees of vertical integration for timber production.

This maturation of a large community forestry sector has had positive results in stopping and reversing deforestation in both temperate and tropically forested regions of Mexico. Historically, the rate of tropical forest loss in Mexico has been three times greater than that of temperate forest loss. But a tropical region of Quintana Roo state where community forest management has long predominated, has shown one of the lowest





rates of deforestation in southern Mexico, a rate lower, in fact, than that of any nature preserve in the region.

A 2005 study showed that the Quintana Roo region and community enterprises in a temperate forest region in Guerrero have low forest loss rates compared to a national sample of nature preserves. More detailed, community-level research in Quintana Roo shows that community rules and forest management plans have often combined to place large areas of forest under varying degrees of protection, meaning that communities themselves forego harvest in these areas. Overall, the forests of Oaxaca state have shown very high rates of loss, but a temperate forest region of the Sierra Norte of Oaxaca, completely dominated by community forest enterprises, has actually expanded its forest cover by 3.3% from 1980-2000. The region of the Monarch Biosphere Reserve in the states of Michoacan and Mexico showed deforestation rates of nearly 2.5% in the 1990s, but it contains two islands of stable forest cover, in communities that manage their forests for timber production.



How did Mexican Community Forestry Come About as an Alternative for Forest Management and Conservation?

The institutions that have allowed communities to exercise control over their forests have their roots in the Mexican Revolution (1910-1918). The agrarian reform process spurred by the revolution, with land and forest redistributions continuing until 1992, put about 70% of Mexican forests in the hands of local communities. The reform process also established two forms of community governance regulated by agrarian laws, both derived from ancient indigenous roots: the *ejido*, established for landless laborers, and the *comunidad*, which recognized the territorial rights of indigenous peoples granted by the Spanish crown. Both *ejidos* and *comunidades* have assemblies of legal rights holders, defined as "heads of households," which democratically elect community leadership for three-year terms. One glaring limitation of this arrangement is that women tend not to have legal property rights in these communities. But the governance structure has provided a platform for the evolution of innovative organizations that allow communities to compete as market-oriented entities.



Mexico's community forestry sector has emerged over several decades. Government policy, laws and programs have been a key though inconsistent factor in the support of local forestry. Industry and donors have also contributed to shaping the current landscape of community forestry. The legal recognition of both common property forests and the collective governance systems underlying them (*comunidades* and *ejidos*) has been crucial to their operation.

The Mexican revolution established the agrarian legislation that created and regulated the *ejido* and *comunidad* common property systems. However, the initial post-independence legislation allowed the government to maintain substantial control over forest resources and permitted the government, in the 1940s, to institute forest policies that ignored community rights over the forests, allowing communities to receive only small payments under a concession system.

There were persistent efforts over the years by reform-minded bureaucrats and others, driven by the ideals of the Mexican

Revolution, to empower communities to manage their own forests. Some efforts to promote forest cooperatives occurred during the Cardenas period (1934–1940), but for the following thirty years, the forest policy agenda paid little, if any, attention to community forest management, although agrarian policy continued to hand out valuable forest lands to communities.

From 1940 to 1970, two policies and two trends, frequently contradictory, set the agenda for the Mexican forest sector. One was the expansion of industrial timber concessions on community lands, and the second was a policy of logging bans. By 1958, total and partial bans were in effect in 21 Mexican states, covering an estimated 32% of the country's entire forest area. In the 1960s and 1970s, government agencies began training local communities to manage community forestry enterprises, and community activists organized waves of protest against abuses in forestry concessions. The period from 1970–1976 established a high-water mark for land redistribution and government activism in

the forestry sector. A government agrarian trust fund organized 135 community forestry enterprises at sawmills, bringing vertical integration to the community level. However, these enterprises were frequently controlled by rural bosses (*caciques*) and were created solely as suppliers to parastatal businesses. Nonetheless, many of these community businesses survived and have evolved into more autonomous organizations.

A significant shift in policy began in early 1973, when reform-oriented actors within the Forest and Fauna Subsecretariat of the General Division for Forest Development (DGDF) were empowered to formulate a new direction in forest policy, and quickly moved to lift logging bans in seven states. By 1978, the DGDF had promoted community organizations in Puebla and Veracruz, representing government investments in social capital. In Oaxaca in the early 1980s, the DGDF established an important community forest organization. Meanwhile, a grassroots resistance movement, the Organization in Defense of the Natural Resources and Social Development of the Sierra Juarez, successfully fought against the renewal of a 25-year concession to a parastatal pulp factory. The movement's activists blocked access roads to their forests and successfully

claimed *amparo*, a legal defense that allows Mexican citizens to seek redress from unjust actions of the state.

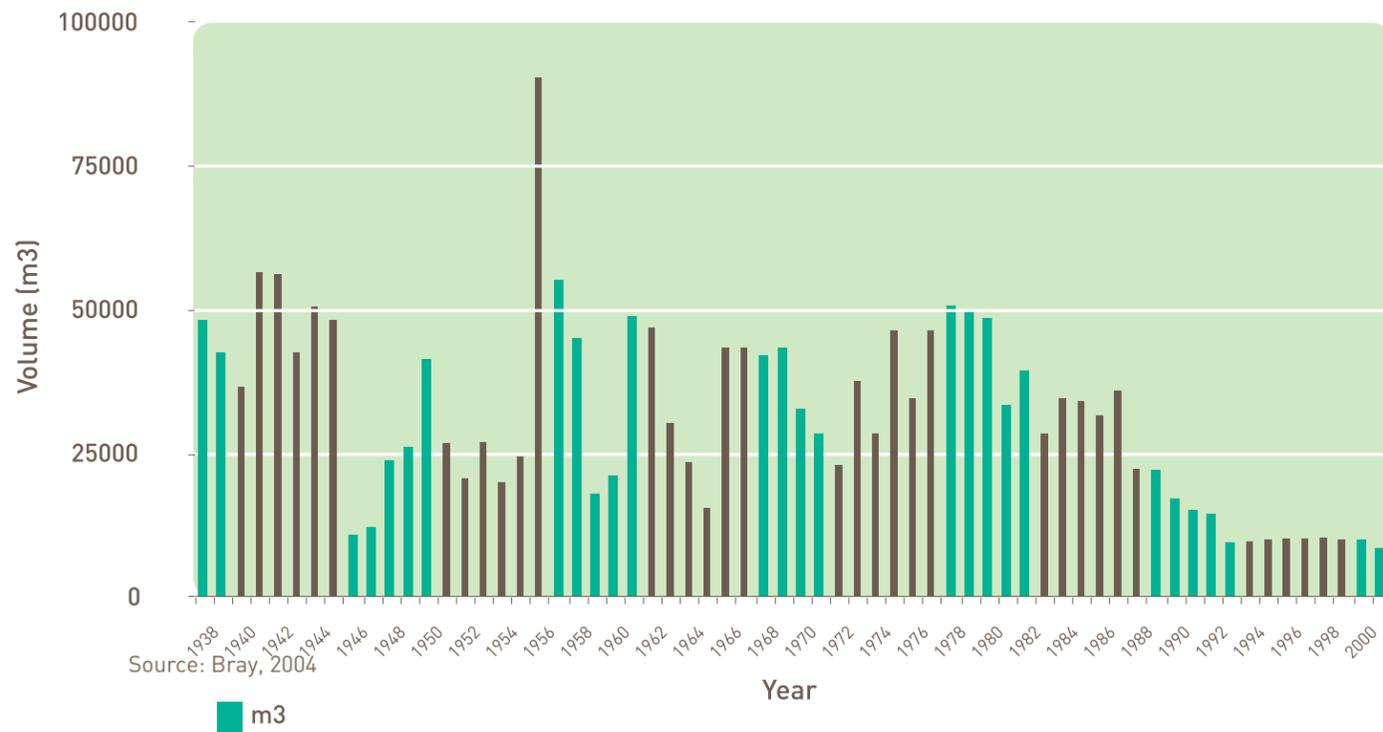
International cooperation also played a role in redesigning forest management institutions at the community level. In the tropical state of Quintana Roo, the Forest Pilot Plan (*Plan Piloto Forestal-PPF*) was of particular significance, because tropical forests have a lower density of commercial species than temperate forests. The PPF was an unusual effort that joined bilateral aid by the German GTZ ministry, with support from the Mexican federal government and the state government of Quintana Roo. This coalition of stakeholders created a technical team that worked closely with communities and had considerable operational autonomy. The PPF successfully moved into a vacuum left by the termination of a long-standing logging concession to a timber parastatal.

The PPF is thought to be the first time in the history of tropical America that communities were able to stop forest degradation on a part of their territory. Community enterprises, using the *ejido* governance system as a platform, conducted participatory inventories, established permanent sampling plots and inter-community organizations.



As shown in the graph below, one of the most significant accomplishments of the PPF was the decision to reduce and stabilize the mahogany and cedar harvest, a decision that a private logging company working on public lands would never have made. Inheriting forests that had been significantly logged over for decades, these communities gradually reduced their volumes, although logging was a key source of community income. Table 2 below portrays how communities reduced and stabilized the mahogany harvest, showing great environmental responsibility in assuming control of forests that had been severely depleted by years of overharvesting.

Table 2: Total Harvested Volume of Mahogany in Quintana Roo, 1938-2001



The Mexican community forest sector really established itself in the late 1980s and early 1990s. Advances in community forest enterprises in Oaxaca, Quintana Roo, and many other Mexican states were consolidated by the 1986 Forest Law, which ended private concessions and began a process of dismantling the parastatals. A rocky period ensued from 1986-1994, when a key land tenure article, Article 27 of the Mexican constitution, was reformed to strengthen common property ownership by removing references to land belonging “originally” to the state.

This clearly established *ejidos* and *comunidades* as a form of corporate communal property, with all property rights over forest lands except that of alienation, meaning that forests could not be sold.

New international donors, such as the Ford Foundation and the Inter-American Foundation, began to support efforts in the sector. In the mid-1990s, two new, significant programs strengthened the communal sector: the Forest Development Program (PRODEFOR) and the Project to Conserve and Sustainably Manage Forest Resources (PROCYMAF). These programs were created by the government and the World Bank to expand the community forestry model throughout rural Mexico. But their funding was always meager in comparison with similar investments in the agricultural sector.

Over the last decade, both programs have continued and expanded their budgets in strengthening existing community forestry enterprises and establishing new ones. The National Forest Commission (CONAFOR) was established in 2000 and charged with forest promotion, and has seen its budget increase twenty-fold, although much of these funds have gone to reforestation and not necessarily to community forestry. In general, Mexican community forestry has had a supportive policy environment since the 1970s, with assistance from the NGO sector in some states that has allowed forest communities to develop their potential as diversified forest producers.

Finally, Mexico has recently generated a more favorable policy environment for the establishment of indigenous/ community conserved areas (I/CCAs). In 2009, new legislation established a formal certification process recognizing I/CCAs, termed “voluntary conservation areas” in Mexico, and which can include private lands, by the National Natural Protected Areas Commission (CONANP). As of September 2010, 221 areas had been certified, covering 274,151 hectares in 15 states.





The Expansion of Community Forestry Management: Is The Rest of the World Ready?

Climate change negotiations have spurred efforts to stop global deforestation and improve degraded forestlands. A process of devolution of rights to forestlands and resources to local communities is underway in many of the forested developing countries. Between 1985 and 2008, 26% of the forests in developing countries were recognized as community-owned, or devolved for community administration and use, establishing a trend of growth in this direction. Eight countries have made up the bulk of these reforms since 2002, but Brazil has been by far the largest contributor, reducing the size of its state-owned forests from 295 million to 88 million hectares, with the remaining 88 million transferred to local owners over the past 6 years.

Further steps are being taken in several countries to experiment with community and family forestry at significant scale. In Brazil, with tenure reforms underway since 2008, the government has begun to implement policies and programs in support of community forestry, mostly in the Amazon region, through targeted financial and legal assistance, encouraging community participation in the design of the programs. This wide-sweeping process of recognition of local rights and support to community forest management has contributed to a significant reduction of deforestation rates, particularly in the Amazon region. In Bolivia, nearly 10 million hectares of forestland have been titled to indigenous groups in the lowland tropical forests of the Amazon Basin. In the Peten region of Guatemala, communities have had forest concessionaire rights on 500,000 hectares of contiguous forestlands for over 12

years, and have significantly increased their incomes from high value timber while slowing deforestation. In the United States, nearly 70% of the forests have private land owners or are reserved for community and individual use.

In Asia, the Chinese government has made pathbreaking reforms over the last four years, devolving state-owned forest lands and timber enterprises to families. Through the passage of the Forest Rights Act in 2006, the government of India recognized the rights of the historically marginalized tribal peoples, an action that may positively affect the lives of nearly 100 million poor people. In Vietnam, Cambodia and Indonesia, governments are beginning to explore different forms of tenure reform.

There is also a widespread and growing trend toward the decentralization of governance and management of forests and forest resources. A recent study, analyzing decentralization in 12 countries that together make up 60% of the world's forests, demonstrated that forest governance is more effective when increasingly independent from the central government. It also found benefits to decentralization when it transfers significant powers and responsibilities to democratically elected and accountable lower levels of government; when property rights are fair, clear and enforced; and when there is an appropriate regulatory framework already in place. Nearly three-fourths of the developing countries of the world are experimenting with decentralization. In the forest sector, this can result in better forest management, and therefore improve the livelihoods of local citizens.

These trends have significant positive implications for the adoption of community forestry and sustainable local management of the forests, which translates into a growing potential for mitigation of CO₂ emissions. A recent, large scale study⁶ conducted in 10 countries in Asia, Africa and Latin America and examining 80 forest areas managed by local communities, found that the greater the forest area and the autonomy at the local



level, the greater the amount of stored CO₂. At the same time, communities were able to obtain much better benefits from their forests for local subsistence. This study also found that when communities owned the forest areas, they tended to restrict consumption of forest products, thereby increasing carbon storage, a pattern similar to what has been shown in community forests in Quintana Roo. On the flip side, the study showed that in state-owned forests, there is a much greater probability of over-exploitation, and thus less



carbon storage.

Time and again, ownership, local decision and rule-making have been shown to positively influence forest conservation. As such, these factors are very relevant to the international climate change initiatives focused on mitigating carbon emissions. As this major study states, "Transfer of ownership of large forest commons patches to local communities, coupled with payments for improved carbon storage, can contribute to climate change mitigation without adversely affecting local livelihoods".⁷ The Mexican model is a strong source of inspiration for what can be achieved. It could be expanded in Mexico and the rest of the world's forests. Though not a panacea, it is the best option for both local and global interests in CO₂ mitigation, conservation, and improving the livelihood of the forest poor. Now is the time to learn from this model, even as we improve it while moving forward.

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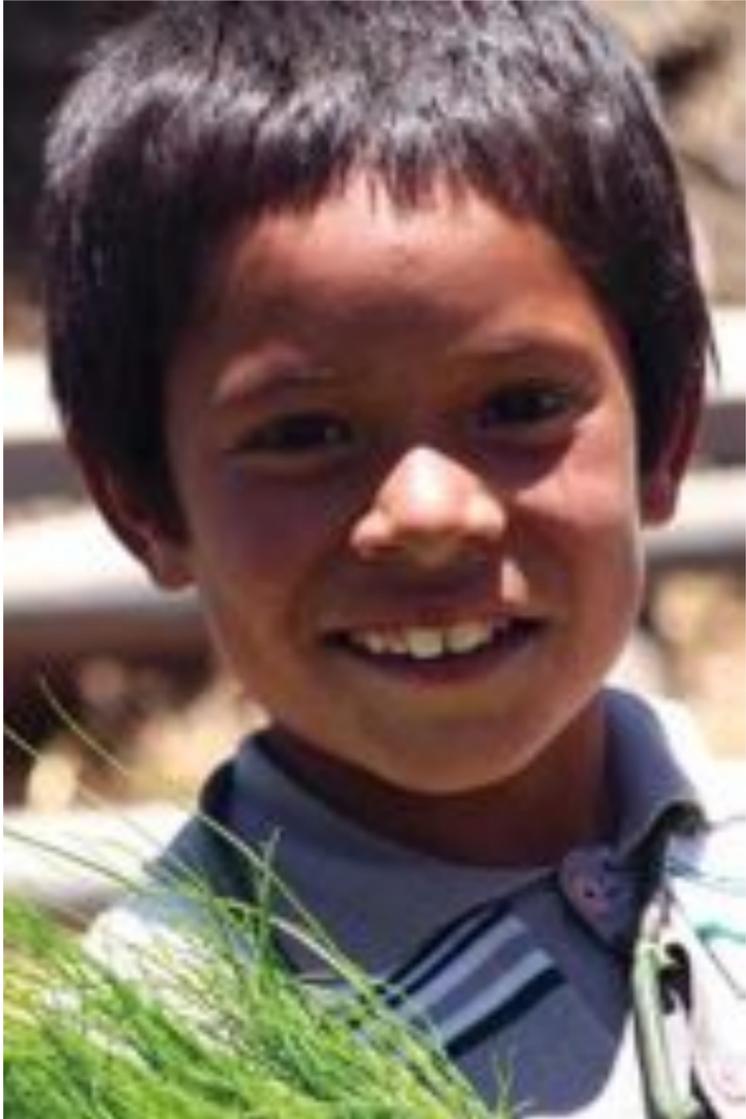
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The **Consejo Civil Mexicano para la Silvicultura Sostenible (CCMSS)** is a non-profit organization, legally established in Mexico City in May 3, 1996. This organization promotes the conservation of forest ecosystems through its communitarian management, the creation of proposals to improve forestry policy and the fostering of economic mechanisms that stimulate conservation and responsible management of forests.

The **Rights and Resources Initiative** is a strategic coalition comprised of international, regional, and community organizations engaged in research, development and conservation to advance forest tenure, policy and market reforms globally. Its mission is to support local communities' and indigenous peoples' struggles against poverty and marginalization by promoting greater global commitment and action towards policy, market and legal reforms that secure their rights to own, control, and benefit from natural resources, especially land and forests. RRI is coordinated by the Rights and Resources Group, a non-profit organization based in Washington, D.C.

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