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## **TRAGEDY OF THE COMMONS FOR COMMUNITY-BASED FOREST MANAGEMENT IN LATIN AMERICA?**

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*This paper considers the evidence surrounding the popular view that common property management regimes (CPMRs) of forest management in Latin America must inevitably break down in the face of economic and demographic pressures. The evidence shows that there have been both positive and negative experiences, with a number of policy implications. The over-riding need is to correct for institutional and policy failures which have catalysed the erosion of CPMRs.*

### **Policy conclusions**

- The main problem for CPMRs has been institutional and policy failure: an unhelpful policy environment has tended to catalyse a vicious downward spiral of internal factors and external pressures on CPMRs. Policy and legal measures currently favour commercial interests and colonist farmers, and this policy bias needs to be corrected.
- Centralised tenure legislation and state models of indigenous tenure have been inimical to indigenous CPMRs, largely as a result of inadequate consultation with indigenous peoples and disregard for the systems of governance or political institutions integral to their natural resource management systems. Indigenous institutions and their associated tenurial forms need to be officially recognised, as in Colombia's 'indigenous territory model' of land tenure, and the legal demarcation of indigenous territories accelerated.
- Policies favouring individual resource privatisation have resulted in high environmental and welfare costs, particularly in Brazilian Amazonia, and increased pressures on CPMRs; this suggests that the erosion of CPMRs in Latin America is really the 'tragedy of the non-commons'.
- Great caution is needed in promoting market-oriented forest management among Amerindian groups with limited previous market exposure, in view of apparent incompatibilities between traditional and market economy institutions. Alternative means of supporting indigenous forest management, based more on indigenous reciprocal logic, need to be considered. Useful examples are found in the broad social and institutional support provided in several EU Amerindian projects. The market approach may be more appropriate for individualised parts of the livelihood system, as well as for

- groups with longer market exposure.
- Any intervention must be preceded by careful micro-level research, especially of the likely impacts on the underlying CPMR institutions.

## Introduction

In Latin America, as in Africa and Asia, the issue of whether CPMRs can stand up to increasing commercial and demographic pressures is a still open question. Following decades of frustration with state-managed approaches such as protected areas and industrial forest concessions, many see community-based forest management as one of the main hopes for biodiversity conservation in the region. The data presented in Table 1, while based on broad estimates, suggest that about a quarter of the Amazon forest region lies within 'indigenous territories' (although only about 20% of these are legally demarcated and recognised). Special mention should also be made of Mexico, where at least 70% (up to a million km<sup>2</sup>) of the national forest area is owned by *ejidos* (land reform cooperatives) or managed by indigenous groups.

In a CPMR, communal arrangements or rules exclude or limit access to non-owners, and regulate resource use among co-owners, of a common pool resource (CPR). In their absence, open access generally prevails.

Co-ownership or control does not necessarily imply communal extraction. Indeed, for many extractive activities like rubber tapping this would be impractical. In practice there are few situations in which all production activities come under effective rule-based community management. Rather there is a continuum of open-access, CPMR and private tenure land-use arrangements along which communities are continually evolving in one direction or the other.

## The 'Tragedy of the commons'

Confusion between CPMR and open access was aggravated by the 'tragedy of the commons' article of Hardin (1968), which failed to distinguish between them. Hardin's theory that resources held in common are doomed to over-exploitation since resource-users are individualistic has exerted a major policy influence in the tropics.

This stance has contributed to policies of resource privatisation (to individuals) and/or state control of CPR areas. In many areas state control has been weak, so that *de facto* open access has been permitted over state 'managed' land (covering up to 80% of forest land in such countries as Bolivia, Brazil, Venezuela, Peru and Panama), when in fact much of it lies in areas subject to extensive management by indigenous groups. Policy-makers assessing the inevitable degradation of these areas in the face of commercial and demographic pressures have blamed the lack of individual property rights over resources for forest degradation in all CPR situations. This paper re-

examines these policy arguments on the basis of a more accurate distinction between open access and CPMRs.

For convenience of analysis, a distinction is made here between (i) longer established and predominantly indigenous CPMRs, and (ii) more recently created CPMRs, which tend to rely more on external institutional support. Using this basic temporal classification, more and less successful examples of CPMRs are discussed in order to develop an understanding of the conditions under which CPMRs are likely to be successful, and thus to identify appropriate policy measures.

**(i) Longer established indigenous CPMRs**

Anthropologists and political scientists have long studied the effects of market integration on indigenous societies in Latin America. The late nineteenth century rubber boom in Amazonia exerted particularly strong effects. Acculturation and economic dependency caused the complete trans-formation of their societies. Davis and Wali (1993) point out the close links between cultural conceptions and social institutions of lowland forest dwellers and their land use practices: market integration and `western' values have eroded indigenous views of the universe in which trees and animals have indwelling spirits, towards one in which the forest is a material object subordinate to the needs of mankind (see Box 1 for a representative study).

**Table 1. Importance of CPMRs for forest management in the Amazon Region**

Country	Amazon Region	Area of indigenous territories* (km2)	Indigenous population
Bolivia	824,000	350,000	175,000
Brazil	4,982,000	800,000	216,000
Colombia	406,000	220,000	80,000
Ecuador	123,000	30,000+	95,000
Peru	957,000	500,000	250,000
Venezuela	530,000	80,000	39,000
Others**	400,000	140,000	70,000

Total	8,222,000	2,120,000	925,000
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\* Based on criteria established by Amazonian governments, and from anthropological and biological studies.

\*\* Paraguay, Surinam, Guyana and French Guyana.

*Sources:* `Derechos territoriales indígenas y ecología' (GAIA-CEREC, 1992); `Reconocimiento y demarcación de territorios indígenas en Amazonía' (GAIA-CEREC, 1993); `Amazonia without Myths' (ACT-IDB-UNDP, 1992); `Indigenous Peoples of the Amazon' (European Working Group on Amazonia, 1993).

The problem comes when products from the forest are equated with goods in the `market economy.' This destroys the traditional exchange system between human activity and nature, removes the checks on extractive practices, and erodes the reciprocal `gift economy' which maintains the incentive for group cooperation at the heart of CPMRs. An individual's status in the gift economy is enhanced by giving away wealth, whereas in the market economy status is enhanced by accumulating it, and the latter is normally more powerful when the two systems meet. As younger people, in particular, move away from tradition and embrace more individualistic market economy values, this causes `confusion and ambiguity among community members over access to resources, usufruct rights and property rights' (Chase Smith, 1995).

### *Problems of centralised tenure legislation*

A further problem is erosion of indigenous CPMRs through centralised tenure legislation. Davis and Wali (1994) identified three main tenure types:

- Indian Reserves (Brazil): a mainly conservationist/protectionist approach, hampered by bureaucracy, and largely ineffective in terms of both legal delimitation and prevention of encroachment.
- Native Communities (Bolivia, Ecuador and Peru): an integrationist (into the market economy) approach often ignoring traditional land tenure institutions.
- Protected Areas (Brazil, Venezuela, Peru and Bolivia): a preservationist approach, but tenure problems have resulted in encroachment by other pressure groups, even in Biosphere reserves.

The underlying problem is that most state models do not recognise indigenous land use systems. There is a particular clash between state concepts of property which assert the principle of limited and exclusive use, and the indigenous concept of territory and land use which views land not as property but as 'Mother Earth', subject to several overlapping uses. Typically the State assigns land rights to indigenous groups but restricts the use of natural resources through control over the above soil, subsoil and water resources, thereby setting up conflicts with vested interest groups.

These models contrast with indigenous 'territory' models in which land and resources are integrated with cultural conceptions of space and socio-political organisation. There have been important developments in Colombia, Panama, Peru and Ecuador involving considerable autonomy from state rules, recognition of indigenous institutions, and the participatory delimitation and protection of indigenous territories.

### **Box 1. Traditional exchange systems in the Colombian Amazon**

The Tanimuca interpret living forms as the external manifestation of 'thought'. Each group of animals, plants and people needs a certain amount of thought, which emanates chiefly from the sun. The Guardians of each group (e.g. the tapir for wild fruit) see to it that each group has enough thought and no-one takes more than their fair share. The Guardian of humans is the Shaman or jaguar man. When people hunt or collect plants they must do so under his direction so they obtain the correct amount of thought for their group. On the basis of his negotiations with the other guardians, the Shaman tells his people where, what and how much they can hunt. Permission varies with the seasons, the reproductive cycle of the animals and the use they make of different areas of the forest. When a person consumes too much, his thought becomes visible to the guardians who will then hunt him down. It is therefore anti-social to accumulate wealth, and there is a strong pressure to make gifts.

*Source:* Bunyard, P., Maresch, S. and Renjifo, J.M. (1993) *New Responsibilities: the indigenous peoples of the Colombian Amazon*. Withiel, Cornwall: The Ecological Press.

Policies which favour colonist farmers in indigenous areas, largely to divert pressure for land reform, are also problematic. Tenure legislation in several countries classifies unprivatised forest land as 'idle' and therefore (i) subject to appropriation by colonists, and (ii) ineligible for tenure rights until cleared.

Box 2 provides a typical example of reforms that have catalysed a weakening of CPMRs, followed by a vicious downward spiral of interacting external and internal factors.

*Greater resilience to outside pressures*

However, there are also many references to indigenous CPMRs responding positively to outside pressures. One study of indigenous groups involved in export craft production observed greater resilience to outside pressures where a market item had a cultural significance or was part of historical ritual. For example, labour reciprocity and gift exchange was maintained among the Amate bark painters of Guerrero, Mexico, in the face of strong market forces (Stephen, 1991).

**(ii) More recently established CPMRs**

More recently developed CPMRs can be conveniently subdivided into non-indigenous and indigenous experiences.

*Non-indigenous experiences*

In the extractive reserves of Brazil and Bolivia, land is retained by the state and leased to extractivist groups like rubber tappers and Brazil nut gatherers for an initial minimum period of 30 years. Brazil's extractive reserves are partly under national control, but are locally administered by elected cooperatives which have developed their own statutes for resource management, based partly on the tappers' customs, ethics and cosmological beliefs. In some cases, reserve monitoring committees have been set up.

However, there are considerable doubts about economic viability. There is high dependence on outside support, and low product prices and marketing diseconomies of scale have forced extractivists into less benign forms of land use, such as cattle ranching. However, some continued external support may be justified since extractive reserves represent a potential long-term solution to social and environmental problems, with major externality implications.

There are relatively few examples of CPMRs among frontier colonists: survival strategies are individualistic and revolve around capital accumulation through the land market (see Natural Resource Perspectives 10). However, evidence (for example from south-east Ecuador) indicates that such cases are more likely to be found in remote colonisation areas, but not in more consolidated areas where most land is owned by wealthier 'second-wave' colonists.

*Indigenous experiences*

Some donor attempts to develop market-oriented community forest management in indigenous areas have met with frustration. In such cases as the Lomerio project in Bolivia, the BOSCOA Project in the Osa Peninsular of Costa Rica, and the ProPeten Project in Guatemala, the main problems have been to do with a weak institutional

**Box 2. Erosion of a CPMR in Tonicapan, Guatemala**

The Maya have managed dense pine forests on the basis of customary rules for centuries. However, since about 1980, community protection mechanisms became less effective in the face of several pressures, including the demise of Mayan cultural beliefs. State authorities attempted to introduce a licensing system to regulate tree felling, but this alienated the communities due to the time and cost involved. At the same time, armed gangs began to strip white pine of its bark for use in leather curing, mainly in night raids. Police proved uncooperative, sometimes arresting local vigilante groups as 'guerrillas' and complaints to higher authorities proved fruitless in the face of suspected bribery. The CPMR was further weakened by intra- and inter-community conflicts over land rights, especially where land tenure documentation was unclear, and by poverty pressures (partly due to the loss of bark income) for subsistence farming.

*Source: Utting, P. (1993) Trees, People and Power: Social Dimensions of Deforestation and Forest Protection in Central America. London: Earthscan.*

base, high immigration pressures, an unhelpful policy environment, and the presence of vested interest groups like loggers.

More positively, the Pilot Forestry Plan (PPF) in southern Mexico has made some progress towards sustainable management attributable to such factors as a high standard of technical assistance, an aggressive marketing and processing strategy, high value forests, local political support, strong community organisation and development of an autonomous supporting institutional structure (Richards, 1993). However, the PPF faces serious economic (partly from NAFTA), legal (from a change in the Mexican Constitution affecting the formerly inalienable status of *ejido* land), social and biological constraints in its attempts to develop truly sustainable forest management.

## Overview of the policy issues

It is clear from the above that CPMRs are vulnerable to demographic and commercial pressures as they make the transition from subsistence-oriented shifting cultivation to greater market integration. The market system clashes with cosmological world visions, and tends to erode indigenous institutions which regulate extractive practices and maintain the individual incentive to cooperate. Commercial pressures intensify the problems of CPMRs because they increase the opportunity cost to the individual to cooperate, the temptation for elites to free ride, and the chances of over-exploitation by the whole group. CPMRs also face the difficulty of excludability where management is extensive, as in the case of the extractive reserves and indigenous territories. These are exacerbated where policies enable colonists, loggers and ranchers to encroach on CPMR areas.

However, cause and effect are rarely easy to separate out. In most cases, there has been a complex of interacting external and internal factors eroding CPMRs, and commercial pressures form part of this complex.

### **The role of the state induced decline of CPMRs?**

Common to most situations where CPMRs have been eroded is that policy or legal changes have played a central or catalysing role: for example, the conflicts between centralised legislation and customary tenure in the state 'indigenous tenure' models; tenure legislation which has encouraged vested interest groups to treat indigenous territories as open-access; policies supporting loggers and colonists in the same or contingent areas; and a failure to uphold basic law and order in defence of CPMRs. Most of the problems involve the redefinition of property rights away from communities and towards individuals (privatisation) or the state (nationalisation).

In Amazonia, the decline of CPMRs appears attributable less to demographic and commercial pressures, than to enclosure or privatisation of the forest resource. This leads dependent communities to put pressure on remaining CPMRs, resulting in a vicious downward spiral between the resource base and CPMR. For May (1992), the highly skewed distribution of property rights is the 'tragedy of the non-commons.'

Behind many of the problems lies the issue of political expediency. Many argue that the underlying policy motive is to enable elite groups to maintain their resource base. This highlights the importance of the democratic process in fostering grass roots



institutions (*viz.* the relative political space in places like Colombia and Costa Rica), and the ability of these to make effective national or international alliances which can lobby for policy change. Such alliances have often emerged from high conflict situations, as in the development of extractive reserves and the Mexican forest *ejidos*.

### **The role of the donors - a misplaced trust in the market system?**

Western market logic which perceives that a forest will not be conserved unless it is given value by the market overlooks the possibility that non-market values provide the stronger conservation incentive for indigenous peoples. Chase Smith (1995), in a gloomy analysis of market-oriented forest management projects among Amerindian groups, argues that the basic constraint has been the incompatibility and confusion of incentives between the market economy and traditional institutions. Market forces have also brought greater risks and, in the case of many NTFPs, led communities into a 'boom-bust' downward cycle. These are unwelcome findings for agencies pushing market-oriented forest management as a means to save the indigenous-occupied rainforest.

Other evidence suggests that donors should observe more carefully the history of market exposure. The relative success in the Mexican examples mentioned here (the forest *ejidos* in a dominant Mayan culture, and the bark painters of Guerrero) has been partly due to the longer exposure to market forces, as compared to some of the Amazonian cases.

### **Appropriate policy support for CPMRs**

The evidence suggests that alternative (to CPMRs) forms of land tenure have been largely disappointing in the achievement of both environmental and welfare objectives. Land privatisation has contributed to speculation-led inflation and deforestation in the Brazilian Amazon, as well as considerable (and still ongoing) violence against the *in situ* population. Given the inherent vulnerability of the Amerindian CPMRs, it may be in society's best interests to provide a measure of protection against market forces. Many analysts and NGOs now support the 'alternative incentives approach' to forest conservation, in which legal, social and technical support should be given in exchange for a commitment to biodiversity conservation and cooperation with scientific activities. This is more in tune with indigenous reciprocal logic and interferes less with their extensive forest management systems. This strategy has been adopted in several projects funded by the European Commission, notably the COAMA project in Colombia managed by the GAIA Foundation.

However, neo-liberal economists regard such ideas with suspicion they challenge their faith in the market system, imply unpalatable international transfers, and raise the spectre of dependency. More imagination and experimentation are needed to find effective ways of supporting indigenous natural resource management, based on a process of consultation with indigenous peoples. A further principle is that appropriate support should be based on an analysis of the overall livelihood system; this could reveal that it would be better to provide market-oriented support to individualised activities such as farming or handicraft production.

But in most CPMR situations, integration into the market economy is a *fait accompli*, and there is little short-term alternative but to respond to market demands for forest

products. Support options include the strengthening of grass roots marketing institutions through training programmes for forest peoples to develop their marketing structures and processing skills, as at the Centre for Indigenous Research created by the Union of Indian Nations at the University of Goiás in central Brazil. Emerging alliances between grass roots organisations, universities, research institutes and NGOs need to be fostered, as do initiatives by progressive elements of the private sector to establish more secure marketing channels.

A major policy priority is legal recognition of the autonomy of indigenous political institutions as Colchester (1994) concludes, 'reconciling indigenous self-determination with conservation objectives is possible if conservation agencies cede power to those who are presently marginalised by current development and conservation models.' Other evident priorities include support for indigenous land claims and the political definition of usufruct rights to extractive resources.

More effort is also needed to understand how CPMR institutions work, to promote the education of forest dwellers concerning their rights under national legislation, and, where possible, to introduce careful integration of the latter with customary tenure. This information can be used to help forest dwellers modify their decision-making and tenure arrangements to increase resilience to outside pressures. In the final outcome, the most appropriate way to support a CPMR depends on a careful location- and culture-specific analysis. **Conclusion**

There is little firm evidence to support the arguments in favour of individualised land privatisation of forest areas currently under CPMRs. There is rather more evidence that, given appropriate policy and institutional support, CPMRs are more likely to achieve environmental and development objectives than alternative forms of tenure. Serious doubts are raised about the market-oriented forest management approach being promoted among Amerindians by some donors. There is a need to consider contract exchange options (conservation for social and legal support) and to undertake more careful analysis of the institutional basis of different parts of the overall livelihood system before deciding on appropriate interventions. Caution is also needed over the creation of new CPMRs; in most situations where attempts have been made, there has either been a high level of conflict, or, as in the case of extractive reserves, the resource base has not lent itself easily to sustainable management.

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