



3.4 Sustainable rural landscape management in Central Mexico

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Introduction

As a result of multiple historical, ecological, political and social processes, around half of Mexico is held in collective ownership by *ejidos* and *comunidades*. These legally recognized forms of collective land ownership are made up of former landless labourers and indigenous groups (Madrid et al. 2009). Since the 1980s, *ejidos* and *comunidades* have gained the right to manage their own forests, creating the possibility of using them to trigger local development (Merino 2004).

In Mexico's rural areas, 11 million people reside in extreme poverty, particularly in forested areas (CNF 2014). This is due to a series of economic and legal obstacles to the sustainable management of natural resources, and to a national economic model that fails to include rural development. Forested regions have been under increasing social and environmental pressures as a result of the demand for land and resources for urbanization, tourism development, mining and industrial agriculture, as well as from the local impacts of climate change. There is a clear challenge to harmonize diverse development goals in land use and management at a landscape scale (Sayer et al. 2013).

The Amanalco-Valle de Bravo watershed in central Mexico is an important socio-ecological mosaic. Diverse environmental and socio-economic interests and land uses compete there. It is one of the most important water providers of the Cutzamala System, which supplies 20% of the potable water for Mexico City and its metropolitan area, the most densely populated area of the country. Its scenic beauty makes Valle de Bravo town popular with the leisure and real estate business. Some land is privately owned; most is owned by 53 *ejidos* and *comunidades*. The land owned by the communities¹ provides for their livelihoods and development. Rural communities make their living from agriculture, forestry, local trade and services in adjacent cities.



INTEGRATED LANDSCAPE
MANAGEMENT AIMS TO
STRENGTHEN LOCAL CAPACITIES
WITH A SUSTAINABLE APPROACH.

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The watershed faces two main risks. First, the weakening of rural livelihoods and cultures has facilitated the growth of a new local power, represented by rich land-owners and tourists, who change the landscape by demanding water and land and carrying out new economic activities. This, along with the abandonment of rural activities (agriculture and forestry) and the shift to urban jobs, increases land-use change and threatens rural communities' economic stability, which was once based on their control over land. Second, deficiencies in various production systems, natural resource management schemes and urban management are accelerating the degradation of water, soils, forests and biodiversity. Public policies and other public initiatives neglect landscape complexity and focus on single objectives (such as environmental conservation that restricts productive development), disregarding relationships between multiple rural development stakeholders.

In 2007 the Mexican Civil Council for Sustainable Forestry (*Consejo Civil Mexicano para la Silvicultura Sostenible*, or CCMSS), along with 11 *ejidos* — which collectively own 15,200 hectares in the upper watershed — initiated a project to promote collective action to support sustainable landscape management. The goals were to strengthen local capacities for rural development, protect local livelihoods and increase community control over land and sustainable production systems.²

Community-based landscape management

The accelerated weakening of rural culture and livelihoods has prompted the loss of natural capital in the watershed. The most important problems are soil erosion, water pollution, loss of agro-biodiversity and forest degradation. This situation is related to the following issues, which have created a complex socio-ecological landscape.

Lack of land and natural resources for new generations

With the growing population, families have had to divide their land among all their children, losing production potential. In addition, local community regulations mean that only one member of each family inherits the rights to common lands (forests); those without these rights cannot participate in community decision-making. Such individuals have no interest in working in natural resources and landscape protection, since they cannot benefit from it. However, they stay in the region because they are able to find jobs in the service sector.

Loss of value of traditional agriculture

Agricultural policy has promoted the development of industrial agriculture while ignoring traditional farming. Poor rural areas receive assistance that subsidizes consumption, not production. Along with economic and international trade trends, this has diminished the value of traditional farmers' products and lowered agricultural yields and prices to a point where traditional agriculture is not competitive.



Low development of the forestry sector

Although the vast majority of communities in the upper watershed have legally authorized forestry operations for timber production, the sector is poorly developed.³ Communities



sell standing timber to private loggers, but are not further integrated in the value chain. Communities in the lower watershed have abandoned forestry activities because of urbanization, land sales and overregulation of the forest sector, which imposes strict, redundant and burdensome requirements. These bring a high cost to forest owners and users who pursue legal forest management.

Organizational weakness

Organizational and administrative weaknesses hamper communities in the area. A lack of confidence in community authorities, deficient administrative skills and decision-making procedures and inadequate technical and professional structures for implementing community initiatives are key barriers to effective governance.

High demand for land and fresh water for urban and tourist development

As a tourist town, Valle de Bravo is growing steadily, and a new toll highway has led to an increase in real estate activity. There is a rising demand for fresh water, both inside and outside the watershed, to supply Mexico City and its surrounding area.

Environmental impacts of production systems and urban development

High soil erosion rates,⁴ decreasing water quality, damage to hydraulic infrastructure, forest and soil degradation and biodiversity loss are the most important environmental impacts of deficient land management practices in the watershed.

Main project activities

In response to the problems described above, four main activities lay at the core of the project.

Governance structures and social capital

Community structures have been strengthened by improving decision-making procedures through information sharing, in-depth problem analysis and planning with *ejido* committees. Instruments for transparency and accountability, internal regulations and administration capacities have also been developed.

Community land use and management planning has been the basis for public and private financing that responds to community needs. The project also ensured the active participation of community members during the design and implementation of funding mechanisms.

The project employs three land-planning instruments. These are also used by other communities across Mexico, but their approaches differ according to their objectives (Anta et al. 2006):

- A Community Land-Use Plan (CLUP) establishes policies for land-use and management planning.
- *Ejidotes/comunidades* operational plans are part of a process to improve community involvement and participation in sustainable land management and to better organize and administer financial resources.
- Farm planning facilitates the implementation of best management practices and activities at the farm level. Agricultural land-owners develop this planning instrument through a process of internal analysis and communication with neighbouring farmers.

Based on an analysis of problems and potentials, land-owners agree on collective actions. A shared vision of the region's main objectives and goals was put into practice through the coordination and implementation of these projects. To date, the *ejidos* in the watershed have prioritized sustainable forest management, agricultural best management practices, and actions to reduce erosion and improve water filtration and environmental practices. These initiatives are currently being tested, monitored and evaluated.

Best management practices and landscape restoration

Given the region's socio-ecological mosaic, the project takes into account several territorial scales: watershed, sub-watershed, *ejidos*, *comunidades*, forest harvesting areas and agricultural parcels. It also considers the diverse social entities in the region: producers, family units, the *ejido* assembly⁵ and the *Unión de Ejidos Forestales Emiliano Zapata*.⁶ Each entity has its own strategies, but also supports the collective goals for managing the watershed and integrating its actions in a common regional framework.

The project has fostered participatory and community-driven land and natural resource planning. This harmonizes *ejidos'* and farmers' livelihoods through enhancing environmental services, capacity building and knowledge sharing. These efforts have strengthened small-scale farmer agriculture and sustainable forest management by sharing traditional local knowledge and putting improved techniques into practice. This in turn has promoted the regeneration of degraded areas and the sustainable use of forest ecosystems, based on improved management practices and increased efficiency and productivity.

Integration of production chains

Forest management and agriculture face multiple challenges that diminish the value of their products. As a result, communities have abandoned these activities in order to pursue job opportunities elsewhere. Given this context, the project is testing new techniques to improve productivity in the region and to integrate production chains that add value to existing forest and agricultural products.



Instruments for financial co-responsibility

Changing deficient land management practices and implementing integrated and sustainable management schemes have several costs, including the transaction costs of developing collective initiatives. It is fair that all users who benefit from landscape management contribute to paying the costs of collective initiatives. Payments for watershed services (PWS) and REDD+ instruments are two options for delivering revenue. PWS and carbon markets must consider communities' views and interests in order to achieve robustness, long-term viability and effectiveness.

CCMSS has designed a local PWS mechanism that allows users, governments and others to jointly contribute to the implementation of integrated landscape management plans that are developed by communities. Payments are structured according to the various types of land use and activities, which respond to local socio-ecological complexities.⁸

CCMSS is also developing a proposal to operate local REDD+ projects that are designed and carried out by local communities. These are nested in REDD+ initiatives at the state or regional level so that they can be scaled up to a national approach, in order to guarantee a coherent implementation of Mexico's REDD+ strategy.⁹ The goal is to link rural development strategies at the landscape scale with the improvement of productive systems and local governance structures.

Success factors

Although the historical, ecological, political and social circumstances of the Amanalco-Valle de Bravo watershed are unique to it, the CCMSS project provides useful insights into the design and implementation of community-driven integrated landscape management in general. The project's management model is likely to be replicated since it is based on



collective agreement and action around land-use planning and management. It includes diverse actors interacting at multiple scales to achieve consensus-building processes and carry out activities that respond to a common agenda. Based on this experience, six main aspects have been identified as factors of success for sustainable rural landscape management:

Scale

Successful interventions require working with the diverse management units (farms, forest management units, communities, watersheds) that are nested in landscapes. Planning instruments should tailor actions to various scales, always considering how to take advantage of objectives and strategies developed at other scales. A range of planning, implementation and monitoring approaches is required from management unit administrators.

Capacity building

It is necessary to invest in capacity building among stakeholders (land-owners and land users) in order to strengthen their ability to design and collectively implement sustainable management plans and to use best practices in management and landscape regeneration. This was achieved by empowering the *ejidos* and strengthening farmer groups through improved administration capacities and decision-making processes, increased funding opportunities and the development of land planning and management instruments as well as best management practices and techniques. It is important to take advantage of existing local knowledge and traditional decision-making mechanisms.

Knowledge sharing

Creating a dialogue — where land-owners, users and producers share and exchange their knowledge on best agricultural and forestry management techniques — is a necessary condition for identifying cultural values around landscapes, integrating traditional uses of natural resources and determining best practices.



Social governance, collective decision-making and participation mechanisms

Landscape management initiatives must work with and strengthen existing governance structures. The *ejido* assembly and the decision-making process led to the consolidation of CLUPs, *ejido* operational plans and farm planning, and supported a local monitoring and evaluation system. This shows that despite the multiple challenges facing collective action, it is possible to create integrated and coherent land management that reconciles diverse interests and land uses. The weakness of existing social structures — and the existence of public policies that undermine community organization and favour individually led activities and centrally-made decisions — have been the most difficult challenges to the project's long-term success.

Resilience and multifunctionality

Land-use strategies and interventions should be multi-purpose in order to address the multiple interests in a landscape. In Amanalco, rural livelihoods rely on a range of landscape use strategies, including agriculture, cattle raising, forest management and provision of environmental services. It is possible to reach a diversity of goals and generate several different products and services within each land use, instead of relying on one aspect. This diversification diminishes dependency, increases resilience and helps reveal the importance of various land uses and productive systems and their interconnections.

Co-financing schemes

Because it is often difficult to find financing for landscape management, PES or REDD+ mechanisms can be useful. However, these instruments should emphasize co-responsibility and should not impose foreign views on local problems.

The CCMSS project aims to strengthen *ejidos* and *comunidades* in order to improve local livelihoods and governance structures, increase the local economy, and prevent deforestation and forest degradation. The experience gained demonstrates that success depends both on the collective agreement and action around land management and on the use of community land planning instruments to identify and address the needs and interests of the local population while producing benefits at the local and regional level. Community-led landscape management projects should inform public policy frameworks (such as REDD+ and PES) so that decisions are based not on a single objective, but on a landscape approach. Public policies must be adapted in order to function in complex socio-ecological circumstances.

Further information

For more information on the project, visit: <http://amanalco.ccmss.org.mx>. Additional information on CCMSS community-based forest and landscape management projects in Mexico can be found at www.ccmss.org.mx.

Endnotes

1. Following a substantial body of related work, the term “communities” refers to *ejidos* and *comunidades*.
2. In 2013 CCMSS received the Land for Life Award from the United Nations Convention to Combat Desertification; see www.unccd.int/en/programmes/Event-and-campaigns/LandForLife/Pages/default.aspx. Video is available at http://youtu.be/V_KN-McTv_M.
3. Under Mexico’s General Law for Sustainable Forest Management, the Ministry of Environment and Natural Resources authorizes timber harvesting by communities. As part of the requirements to obtain authorization, producers first need to develop a forest management programme. See: *Ley General de Desarrollo Forestal Sustentable* (General Law for Sustainable Forest Management), published February 25, 2003: www.diputados.gob.mx/LeyesBiblio/pdf/259.pdf.
4. Soil erosion rates are higher than 50 tonnes/ha/year in 20% of the watershed.
5. The *ejido*, or community assembly, is constituted by its members, who designate a *comisariado* (a representation and managerial body) that makes decisions on common property resources and internal *ejido* affairs. The assembly is mandated by the Mexican Agrarian Law.
6. The *Unión de Ejidos Forestales Emiliano Zapata* is composed of eleven forest *ejidos* that manage and protect their forests.
7. The local PWS mechanism operates a trust fund to receive contributions. The National Forestry Commission covers approximately half of the implementation costs.
8. For more information on the proposal developed by CCMSS for PES, see Madrid (2012).

9. For Mexico's draft version of the National REDD+ Strategy, see *Comisión Nacional Forestal/ National Forestry Commission, Estrategia Nacional para REDD+ (ENAREDD+)*, April 2014. www.ccmss.org.mx/descargas/ENAREDD_abril_2014.pdf.

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