WORKING PAPER 236

Analyzing multilevel governance in Mexico

Lessons for REDD+ from a study of land-use change and benefit sharing in Chiapas and Yucatán

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CIFOR
CGIAR
RESEARCH PROGRAM ON
Forests, Trees and Agroforestry

Working Paper 236

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Center for International Forestry Research (CIFOR)

Working Paper 236

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DOI: 10.17528/cifor/006798

Trench T, Larson AM, Libert Amico A and Ravikumar A. 2018. *Analyzing multilevel governance in Mexico: Lessons for REDD+ from a study of land-use change and benefit sharing in Chiapas and Yucatán.* Working Paper 236. Bogor, Indonesia: CIFOR.

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We would like to thank all funding partners who supported this research through their contributions to the CGIAR Fund. For a full list of the 'CGIAR Fund' funding partners please see: http://www.cgiar.org/who-we-are/cgiar-fund/fund-donors-2/

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Abbreviations

APDT	Public Territorial Development Agency (*Agencia Pública de Desarrollo Territorial*)
ARS	Regional forestry association (*Asociación Regional de Silvicultores*)
ASERCA	Service agency for the commercialization and development of agricultural markets (*Agencia de Servicios a la Comercialización y Desarrollo de Mercados Agropecuarios*)
ASIRMI	Miramar region forestry association (*Asociación de Silvicultores Región Miramar*)
CCMSS	Mexican Civil Council for Sustainable Forestry (*Consejo Civil Mexicano para la Silvicultura Sostenible*)
CDI	Indigenous Peoples' Development Agency (*Comisión Nacional para el Desarrollo de los Pueblos Indígenas*)
CICC	Inter-Ministerial Commission for Climate Change (*Comisión Intersecretarial para el Cambio Climático*)
CONABIO	National Commission for Knowledge and Use of Biodiversity (*Comisión Nacional para el Conocimiento y Uso de la Biodiversidad*)
CONAF	National Forestry Council (*Consejo Nacional Forestal*)
CONAFOR	National Forestry Commission (*Comisión Nacional Forestal*)
CONAGUA	National Water Comission (*Comisión Nacional del Agua*)
CONANP	National Commission for Natural Protected Areas (*Comisión Nacional de Áreas Naturales Protegidas*)
CSO	Civil society organization
CTC-REDD+	Technical Advisory Committee for REDD+ (*Comité Técnico Consultivo REDD+*)
ENAREDD+	National REDD+ Strategy (*Estrategia Nacional REDD+*)
ENCC	National Climate Change Strategy (*Estrategia Nacional de Cambio Climático*)
FCPF	Forest Carbon Partnership Facility
GCF	Governors' Climate and Forests Task Force
GCS	CIFOR's Global Comparative Study on REDD+
GDP	Gross domestic product
GEF	Global Environment Facility
GIZ	German International Development Agency
GM	Genetically modified
IRE	Emissions Reduction Initiative (*Inciativa de Reducción de Emisiones*)
IUCN	International Union for Conservation of Nature
JIBIOPUUC	Puuc Biocultural Inter-Municipal Board (*Junta Intermunicipal Biocultural del Puuc*)
LAIF	Latin America Investment Facility (European Commission)
LED	Low emissions development
LUC	Land use change
MoU	Memorandum of understanding
MOCRI	Regional Independent Peasant Movement (*Movimiento Campesino Regional Independiente*)
M-REDD+	Mexico REDD+ Alliance (*Alianza México-REDD+*)

MRV	Measuring, reporting and verifying
MXN	Mexican pesos
NAFTA	North American Free Trade Agreement
NGO	Nongovernmental organizations
PA	Protected area
PACCCH	Chiapas Climate Change Action Program (*Programa de Acción de Cambio Climático del Estado de Chiapas*)
PEPY	Yucatán Peninsula Special Program (*Programa Especial Península de Yucatán*)
PES	Payments for environmental services
PESL	Lacandon Forest Special Program (*Programa Especial para la Conservación, Restauración y Aprovechamiento Sustentable de la Selva Lacandona*)
PRI	Institutional Revolutionary Party (*Partido Revolucionario Institucional*)
ProAgro	Agricultural production program (previously PROCAMPO)
PROCEDE	*Ejido* rights certification program (*Programa de Certificación de Derechos Ejidales y Titulación de Solares*)
PROFEPA	Federal environmental protection agency (*Procuraduría Federal de Protección al Ambiente*)
PROGAN	Sustainable livestock program (*Programa de Producción Pecuaria Sustentable y Ordenamiento Ganadero y Apícola*)
PRONADE	National Felling Program (*Programa Nacional de Desmontes*)
RAN	National Agrarian Register (*Registro Agrario Nacional*)
REDD+	Reducing Emissions from Deforestation and forest Degradation plus conservation and sustainable management of forests, and enhancement of forest carbon stocks
Red MOCAF	Mexican Network of *Campesino* Forest Organizations (*Red Mexicana de Organizaciones Campesinas Forestales* A.C.)
REBP	Puuc Biocultural State Reserve (*Reserva Estatal Biocultural del Puuc*)
RSPO	Roundtable on Sustainable Palm Oil
SAGARPA	Ministry of Agriculture, Livestock, Rural Development, Fisheries and Food (*Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentos*)
SECAM	Ministry of Agriculture, Chiapas (*Secretaría del Campo*)
SEDUMA	Ministry of Urban Development and the Environment, Yucatán (*Secretaría de Desarrollo Urbano y Medio Ambiente*)
SEMAHN	Ministry of Environment and Natural History, Chiapas (*Secretaría de Medio Ambiente e Historia Natural*)
SEMARNAT	Ministry of the Environment and Natural Resources (*Secretaría de Medio Ambiente y Recursos Naturales*)
RBSO	Selva El Ocote Biosphere Reserve (*Reserva de la Biosfera Selva El Ocote*)
TNC	The Nature Conservancy
UGROY	East Yucatán Regional Ranchers' Union (*Unión Ganadera Regional del Oriente de Yucatán*)
UMAFOR	Forest Management Unit (*Unidad de Manejo Forestal*)
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
USD	United States dollars

Acknowledgments

The authors would like to thank all those in the states of Chiapas and Yucatán that agreed to be interviewed during the research phase of this working paper and who shared their thoughts and experience with us. In particular, we would like to mention Ricardo Hernández, the under-minister for forests in Chiapas (SEMAHN) and Eduardo Batllori, the environment minister in the Yucatán state government (SEDUMA), both of whom assisted us at the beginning of the research process. We would also like to thank Elsa Esquivel of AMBIO in San Cristóbal de Las Casas (Chiapas), who supported our research throughout and with whom we had many enlightening conversations about the 'REDD+ process' in Chiapas and in Mexico. We are also grateful to José Antonio Montero of Pronatura Sur and Juan Carlos Franco of Cecropia for their insights and interest in our research. Sonia Náñez was of enormous help in the Frailesca region of Chiapas. We would also like to extend our thanks to Adalberto Vargas of the National Forestry Commission (CONAFOR) in Tuxtla Gutiérrez (Chiapas), who helped us with information and contacts, and to José Arellano (SEDUMA) for his assistance with the workshops carried out in Oxkutzcab in 2016 and 2017. We would like to acknowledge the assistance of Elizabeth Velasco in the preparation of maps and graphs, as well as Christopher Martius and Natalia Cisneros for their observations and comments on the final draft.

This research is part of CIFOR's Global Comparative Study on REDD+ (www.cifor.org/gcs). The funding partners that have supported this research include the Norwegian Agency for Development Cooperation (NORAD), the International Climate Initiative (IKI) of the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB), and the CGIAR Research Program on Forests, Trees and Agroforestry (FTA) with financial support from the CGIAR Fund Donors.

Executive Summary

This study critically explores how land-use decisions are made and how these affect outcomes for diverse actors in two states in southern Mexico: Chiapas and Yucatán. On the basis of 152 interviews with actors at different levels, we look at decision-making processes around land use, REDD+ processes at the subnational level and approaches to benefit-sharing at the project level, to examine the potential of new low emissions development (LED) initiatives. In particular, we examine questions of participation in decision-making processes and perceptions regarding the legitimacy and equity of these arrangements. The concept of multilevel governance is employed to analyze the degree of coordination between different levels and sectors for a common end. Multilevel governance arrangements in Mexico face many challenges, not least sectoral cultures that promote (and perpetuate) particular visions of (and for) rural areas that are often incompatible. Different government ministries and commissions have different 'ways of doing things', rhythms and goals that do not always permit collaboration with other actors. While we found many examples of efforts to improve multilevel governance around common problems, we also encountered many obstacles and inertias inhibiting the transformation of cross-sector planning processes into practice.

Federal government and *ejidos* (collective landholdings) were the governance levels considered to have most influence over land-use change and forests. This nexus is unsurprising, given how agrarian law links these collective landholdings directly to the executive. The influence of state governments in agriculture and environment policies differed in Chiapas and Yucatán. In practice, however, the limited budgets assigned to state agencies meant that the federal level prevailed. This has affected land-use change through agricultural subsidy programs and, to a lesser extent, payments for environmental services (PES). REDD+ may change this, especially if state governments receive independent funding for LED projects. Municipal governments were generally absent in issues relating to land use and forests and for the most part were perceived as being preoccupied with (urban) infrastructure investment and attracting scarce funding from higher levels of government.

At the same time, many *ejidos* and communities make day-to-day decisions on land use and forest management. Around half of the country is occupied by *ejidos* and agrarian communities that own some two-thirds of Mexico's forests, which makes these collective landholdings key players in REDD+ implementation. While rights holders generally manage agricultural lands within *ejidos* and agrarian communities individually, according to agrarian law all forest remains under a collective-use regime. While facing a range of challenges, *ejidos* can be strong institutions for local governance, particularly when their lands have significant forest cover. But there are contradictions between this rural reality and current government policy for the sector. Since reforms to agrarian property in 1992, government institutions have increasingly abandoned this sector of the rural economy, and poverty remains entrenched. The agricultural ministry, SAGARPA, largely promotes an agro-industrial vision for rural development, disproportionately funding richer producers, and despite a National REDD+ Strategy that looks to "strengthen, promote and generate conditions for local governance", funding has been cut precisely to those programs that looked to enhance local forest governance.

Improved governance is normally associated with increased legitimacy, transparency and accountability, achieved through broader participation and, often, decentralization. Policy efforts to improve environmental governance are thus conditioned to a large degree by the current national context. Mexico is passing through a challenging moment in the consolidation of its democracy, with deteriorating trust in electoral processes, the judicial system and politicians. So, while the legal framework around forests and the environment is relatively complete, corruption and traditional political relationships, characterized by clientelism and corporatism, can compromise government actions. Moreover, weak environmental oversight and vigilance permits illegal activities. Civil society

organizations (CSOs) have highlighted the problem of illegal logging, seeking to work with legislative institutions in order to promote 'forest legality'.

Innovation in governance structures and new coalitions for change have emerged in the context of climate change legislation and REDD+. New inter-ministerial commissions and memoranda of understanding (MoUs) between the agricultural and environmental sectors exist at the federal and state levels. However, at least from a subnational perspective, these new spaces and promises of closer collaboration had yet to make a significant impact on improved land-use planning at the time of this study. In the context of REDD+ early actions, the National Forestry Commission (CONAFOR) sought to deliver more integrated, regionally adjusted projects to important forest areas, including parts of Chiapas and Yucatán. Still, many interviewees considered that these programs differed little from traditional interventions.

At the same time, CSOs have matured, and a wide variety of environmental nongovernmental organizations (NGOs) actively promote LED alternatives in both states. This has undoubtedly enriched the debate and significantly supported government policy. But some NGOs can fall into the trap of only being accountable to those 'above' (i.e. funders) and not to those 'below' (i.e. beneficiaries). Although some NGOs provide non-monetary benefits, such as training, technical assistance and 'accompaniment', short and unpredictable funding cycles sometimes frustrate continuity. Grassroots and genuine independent organizations were notably absent in the REDD+ debate in Chiapas and Yucatán.

We conclude that significant inter-sectoral barriers to successful REDD+ implementation remain. For many regions, it is 'business-as-usual' in the sense that sectoral interventions and deforestation continue largely unabated. The REDD+ message has not yet penetrated the agricultural sector, at a federal or state level, despite high-level MoUs. Without SAGARPA on board, REDD+ activities may be limited to certain, ecologically privileged areas, promoted only by environmental NGOs and the environmental sector. Indeed, as REDD+ progresses, satisfying the requirements of the United Nations Framework Convention on Climate Change (UNFCCC) and the Forest Carbon Partnership Facility (FCPF), diverse actors (principally unorganized forest owners) are getting left behind. Participatory spaces have not guaranteed consultation with many of these actors. While NGOs and consultants rush to hand in proposals for state REDD+ strategies, investment plans and safeguard systems, subnational policy becomes fragmented; many actors and organizations remain out of the loop. There is a danger that the technical and normative aspects will prevail over the social and the political, in a context of externally imposed time lines and government pressure to push REDD+ through with as few obstacles as possible.

Thus many uncertainties remain with respect to multilevel governance innovations that would bring about an efficient, effective and equitable implementation of REDD+. The much-touted Public Territorial Development Agencies (*Agentes Públicos de Desarrollo Territorial*, APDT) are not yet consolidated and have no truly successful experiences to date in Chiapas. The future role and precise legal character of these new territorial agencies remain unclear and some interviewees questioned if these agencies would ever truly take on their intended responsibilities. The important agrarian dimension – as a territorial question and a benefit-sharing challenge – has been rendered largely invisible by government REDD+ policy in practice, despite reiterated discourses in favor of local and territorial governance. Nonetheless, the role of common property forest found in *ejidos* and communities for reducing emissions will be central to the success of REDD+ in Mexico.

1 Introduction

This study takes a critical look at how land-use decisions are made and how these affect outcomes for different actors in two states in southern Mexico. It also studies the potential of new low emissions development (LED) alternatives, looking at questions of participation and inclusion in decision-making processes and perceptions regarding the legitimacy and equity dimensions that result from these arrangements. Using a multilevel governance perspective, this study specifically looks at how new REDD+ type programs in forested regions affect diverse outcomes for local inhabitants, who are largely, in the case of this study, *ejido* (collective landholding) residents.

In recent years, Mexico has become a proactive player in climate change and biodiversity policies, both nationally and internationally. The Climate Change Law came into force in 2012 and in 2013 Mexico published its Mid-Century Strategy, the National Strategy for Climate Change, Vision 10-20-40 (SEMARNAT 2013). As part of the Paris Agreement, Mexico's Nationally Determined Contribution provides for an unconditional reduction of 22% of greenhouse gas emissions and a zero net deforestation rate by 2030.

From the start, Mexico adopted a broad definition of REDD+, envisioning it as an integrated territorial LED strategy for rural areas, not simply a mechanism for reducing emissions from deforestation and forest degradation and conserving forests. Perhaps because of this, the scenario in Mexico regarding the implementation of REDD+ and other LED initiatives is particularly complex and dynamic, involving many actors operating at different levels, shifting alliances and periodic ruptures. Mexico got off to a swift start with REDD+, producing a number of key national policy documents in time for the UNFCCC COP16 climate talks in Cancun at the end of 2010. This round of talks was key to building international consensus around REDD+ and produced the first formal document defining the different safeguards that were proposed to mitigate the possible human rights and cultural impacts of REDD+ implementation, particularly in indigenous regions. As we will see, since 2010, the situation has changed significantly, and currently there is concern that the application of REDD+ is losing momentum in Mexico.

It is beyond the scope of this study to provide a detailed overview of the national context regarding REDD+ implementation (see Carrillo and Velasco 2016). Nonetheless, through the data gathered in 10 land-use sites, in two states in the country, this paper demonstrates how international and national policies and programs have 'hit the ground'. We query whether the LED options are gaining traction and altering power relations and governance around natural resource use and benefit sharing. This report hopes to inform strategies of change aimed at reducing emissions from deforestation and degradation, while also protecting or improving local livelihoods.

1.1 Political background

Mexico is a federation, in which the three levels of government – federation, state and municipality – have relative autonomy and established spheres of influence. Nevertheless, in practice, centralist instincts and tendencies persist in Mexico, often combined with weak institutions and modest budgets at the state and municipal level. This means that power is effectively retained at the federal level and reflected in the dominance of federal budgets, particularly in the areas of agriculture and natural resources. Here the political history of Mexico is relevant. During the 20th century, Mexico was dominated by one state party – the *Partido Revolucionario Institucional* (PRI) – that over seven decades of uninterrupted power managed to engineer a corporatist-populist machine that centralized power in the federal government and created a political elite through party structures. Although the

PRI finally lost the presidential elections in 2000, the political system and culture have been slow to change and, in 2012, the PRI returned to power. World Bank governance indicators suggest that in certain areas, government in Mexico, counter to broader tendencies in Latin America, is becoming less accountable and less effective in controlling corruption and, for the last two decades, the 'rule of law' indicator has persistently been below the continental average.[1]

Political commentators have pointed to the 'myth of the democratic transition' in Mexico and to the high levels of dissatisfaction with the democratic process (Olvera 2010; Ackerman 2015). As a senior employee at the agricultural ministry commented to us: "We live in a society where votes are bought". Some see Mexico as a country in the grip of an oligarchy, in which state institutions are weak and elites control the economic and political resources, as reflected in the stagnant or worsening economic conditions for the majority of the Mexican population (IETD 2015; Loaeza 2016). This economic situation, along with continual reports of corruption and increasing levels of violence, have created a crisis of legitimacy for the current administration, which has historically low approval ratings in the polls. Some point to how organized crime has increasingly filled power vacuums left by federal government (Buscaglia 2013), a process that has been evident in the struggles for control of forested regions in western and northern Mexico, leading to the creation of community police and self-defense forces in Guerrero and Michoacan, for example, in a local response aimed at recovering control of the forests from drug trafficking groups. Others point to the economic impact of organized crime, estimating that it may cost Mexico as much as 10% of its gross domestic product (GDP; *The Economist* 11 June 2016). A further problem is an inefficient and badly coordinated judicial system that secures few convictions, perpetuating a climate of impunity that does not generate incentives for legal behavior (*The Economist* 11 June 2016). This general mistrust of government, combined with disillusionment with political parties and the electoral process, has conditioned the ways in which government interacts with local populations in all spheres.

Our research shows that decisions around land-use change (LUC) are essentially political (rather than technical). They are political in the sense that different actors and groups with divergent interests seek to influence government and form coalitions to secure land-use outcomes that benefit them; although the land itself is located in a particular region, many interests can be involved in determining its use, to the advantage or disadvantage of different groups at distinct levels. As we shall see, LUC decisions are often determined by the existing structure of incentives, which are not always compatible with LED. In the case of Mexico, many government policies and programs (or their absence) reflect dominant economic models (such as export agriculture or mining), or they can have more overt political motives (oil palm subsidies to gain political legitimacy, for example).

Political cycles are also relevant to understanding decision-making processes around LUC. For example, the change in administration and political party after the presidential elections in 2012 has had a direct effect on the development of REDD+ in Mexico, and there is currently some concern as to whether REDD+ is losing momentum due to declining political will and an unfavorable economic context. Declining oil prices and a weakening national currency have given rise to a series of austerity measures that have severely affected the environmental sector. For the forestry sector in particular, this meant a 40% cutback in staff and the disappearance within the CONAFOR of departments that dealt with carbon markets and REDD+, as well as the Department of Community Forestry (CCMSS 2015 a).[2] Further cuts to the federal environmental budget in 2017 amounted to a reduction of over 60%

1 www.govindicators.org

2 The Mexican Civil Council for Sustainable Forestry (*Consejo Civil Mexicano para la Silvicultura Sostenible,* CCMSS) considered that in 2016 there would inevitably be delays in REDD+ implementation due to the closing of the CONAFOR department for forest carbon and projects (*Gerencia de Proyectos y Mercados Forestales de Carbono*), the canceling of funds for Local Development Agencies (ADL) and APDT and less focus on community forest management with the disappearance of the programs that attended this area, such as the *Programa de Fomento a la Organización Social, Planeación y Desarrollo Regional Forestal* (PROFOS) and *Desarrollo Comunitario Forestal de los Estados del Sur* (DECOFOS).

in CONAFOR's resources, rendering it largely incapable of complying with current commitments, particularly the Paris Accord recently approved by the Mexican Senate.[3]

Thus, the essential substrata to this study of governance arrangements around land-use is Mexico's particular 'transition to democracy' and the political processes and cultures that both inhibit and promote efforts to democratize public life. Decentralization is not a governance arrangement that can be simply legislated; it has to be activated, appropriated and adequately budgeted to avoid 'unfunded mandates', some of which are identified in this study. Changing current development trajectories in Mexico faces considerable political barriers and inertias in the exercise of public power, despite efforts from different sectors to improve governance structures and broaden participation, as we shall see below.

Following Saito-Jensen (2015: 2), we understand the concept of multilevel governance as comprising numerous state and non-state actors located at different levels, such as the local (subnational), the national and the global (supranational). The challenge pinpointed by multilevel governance theorists is that these diverse levels of government must somehow be aligned to enable the definition of collective goals.

A number of findings emerged during the research, and consequently guide this paper:

- In Mexico, land-use policy is fraught with centralizing tendencies, and different sectors often have incompatible (rural) development agendas. This inhibits successful innovation and a 'made to fit' territorial approach to LED.
- CONAFOR's Special Programs in REDD+ early action areas revealed a forest-centered, conservationist approach rather than the sustainable management goals and LED expressed in Mexico's policy documents (including the National REDD+ Strategy).
- Although formally REDD+ is advancing, in practice there are doubts, tensions and competing visions regarding implementation. The designation of a forestry agency without the rank of ministry – CONAFOR – for the implementation of REDD+ has challenged the socialization of the REDD+ message throughout other sectors.
- Although in recent decades more spaces have emerged that allow for broader participation in decision-making around forests and land-use at different levels of government, these spaces have struggled to maintain their independence, legitimacy and effectiveness as counterweights to centralized decision-making processes. A neo-corporatist structure and logic continue to characterize political interactions; this challenges the consolidation of more inclusive and equitable governance systems and benefit-sharing arrangements around REDD+.
- Civil society has been active in supporting and strengthening environmental policy in the context of REDD+. However, there are concerns that many nongovernmental organizations do not actually represent rural inhabitants and forest owners, while grassroots productive organizations have largely been left out of the debate.
- The agrarian dimension – as a territorial issue and a benefit-sharing challenge – has been rendered largely invisible by government REDD+. Despite reiterated discourses in favor of local and territorial governance, the difficult questions around the influence of the agrarian dimension of REDD+ implementation have so far been sidestepped.

1.2 Geographical and ecological context

Mexico has a surface area of almost 2 million km^2, of which two-thirds is 1000 or more meters above sea level, with 47% comprising slopes steeper than 27%.[4] Estimations vary, but from 1976 to 2000, Mexico had one of the highest deforestation rates in the world. The main drivers were population and

3 'Presupuesto 2017 condena a los bosques'. Newspaper *El Milenio*, 28 September 2016.

4 http://sdwebx.worldbank.org/climateportalb/home.cfm?page=country_profile&CCode=MEX

urban growth, migration to tropical forest areas and the expansion of commercial agriculture (Corbera *et al.* 2011: 311). Since the mid-1990s, these deforestation rates have gradually decreased and are currently calculated at 0.1% *per annum* (for tropical forests this figure is higher) (FAO 2015). At the moment, FAO considers around a third of Mexico to be 'forest' (FAO 2015: 6) and 52% of the country is dedicated to agriculture. It is estimated that Mexico's forests are among the 24 most important in the world in terms of volume of carbon biomass. In 2010, it was calculated to be 2043 million tCO_2e with an average of 32 tCO_2e per hectare (CONAFOR 2017: 32).

Mexico includes a diverse range of ecosystems from its nearctic to subtropical latitudes and is usually considered one of the five most megadiverse countries in the world. It has an exceptionally high number of endemic species and is the center of origin of maize, one of the world's most important cereal crops. Much of this biodiversity is found in Mexico's forests that vary from subtropical rainforest, to pine forest, mangroves and arid vegetation in the north of the country. This biological and ecosystem diversity is linked to cultural diversity – over 7 million Mexicans speak one of 68 indigenous languages – and this biocultural diversity is further accentuated in the south of the country; in the case of Chiapas and Yucatán, indigenous groups represent almost 30% of these states' populations and Chiapas is considered to be the second most biodiverse state in the country.[5]

Protected areas (PAs) have become the most important policy instrument for Mexican conservation. By 2015, 13.2% of the country was under some form of protection with 176 federal PAs distributed across the country.[6] In the case of Mexico, these reserves have generally been created on the top of existing agrarian structures (*ejidos*, communities and private properties), which has inevitably led to some degree of conflict with local populations regarding permitted land uses, agricultural practices and jurisdictions. Nonetheless, there are also examples of successful collaboration between rural producers (*campesinos*) and protected area authorities.

1.3 Socioeconomic background

Until the 1980s, demographic growth in Mexico was above 3% per annum and the population grew more than tenfold in the last century. Currently, the population stands at almost 120 million and population growth is 1.4% per annum (INEGI 2015). Over three-quarters of this population currently live in urban areas, with only around 26 million people living in rural areas in 2010 (INEGI 2011), around 14 million of whom live in Mexico's forests (Merino and Martínez 2014). Despite over half the rural population working directly in agriculture or forestry, the official contribution of agriculture, forestry and fisheries to national GDP is consistently under 4% (INEGI 2015).

Mexico is currently considered an 'upper-middle income' country by the World Bank but despite growth in the *average* per capita income over recent decades, poverty remains entrenched and wealth ever more concentrated in the hands of the few. A recent Oxfam report has warned about sharp increases in inequality in Mexico in recent years, revealing that 10% of the population currently controls 61% of national income (Esquivel 2015: 7).

In rural areas, 62.4% of people are considered 'poor' by national criteria.[7] The rural sector has been subject to a neoliberal restructuring from the early 1990s onwards which attempted to stimulate a land market by cancelling land distribution and increasingly exposing small farmers to international markets through free trade agreements. The government withdrew from the sector to a large degree;

5 Although according to official figures only 6.5% of the national population speak an indigenous language, over 20% of the population (> 25 million individuals) considers themselves to be 'indigenous'. According this self-identification criteria, in Chiapas and Yucatán, the figures rise to 36% and 65% respectively (INEGI 2015).

6 See http://www.conanp.gob.mx/regionales

7 http://wdi.worldbank.org/table/2.7

credit became scarcer and public investment was replaced with subsidies that did little to reactivate agricultural production (Fox and Haight 2010; Concheiro and Robles 2014).[8] The Mexican countryside can be characterized by ever-smaller productive units, high demographic growth, low prices for traditional agricultural products, under-employment, migration, 'feminization' of agricultural work, aging landowners and high levels of conflict over land (Concheiro and Robles 2014).

This scenario has had contradictory effects on land use and forests. On the one hand, it has produced deforestation, with the increases in the rural population[9] and ever-smaller plots, with farmers increasingly dependent on private credit and agrochemical companies that can lead to a cycle of debt and degradation. But on the other hand, it has also made rural production economically (and environmentally) unviable for many smallholders, who have migrated to the cities or the United States in search of work, leading to the abandonment of agricultural land and forest regeneration (a dynamic particularly evident in Yucatán, where climate change in the form of extended droughts is more palpable).[10]

In the Latin American context, Mexico still distinguishes itself by the striking legacy of its agrarian reform program, which between 1917 and 1992 distributed over half the country's surface area in land grants known as *ejidos* and agrarian communities (*bienes comunales*). This 'social property' sector still owns around two-thirds of Mexico's forests and represents an important system for local land governance, with a supposedly universal institutional structure dictated by Mexico's constitution and agrarian laws (Madrid *et al.* 2009; Merino and Martínez 2014).

With changes to the Mexican constitution in 1992 in the context of preparations for Mexico's entry into the North American Free Trade Agreement (NAFTA), the government sought to free up *ejido* and community land for the market, to make the sector more attractive to private investors, and the policy environment became increasingly biased toward supporting the private sector (Barnes 2014). In 1993, the *Ejido* Rights Certification Program (PROCEDE)[11] was established with the aim of certifying individualized plots in order to stimulate a land market. So far, 96% of land has been 'certified' by PROCEDE (or FANAR, the program that succeeded PROCEDE), but officially only 3% of *ejido* land has become privatized in the decades since the reforms were enacted.[12] This figure hides the important process of *de facto* privatization in many *ejidos*, but there are also cases where *ejido* members used the government program to clarify demarcations between land plots and 'common-use' areas, but then collectively decided to curb the market in different ways, such as limiting the purchase of land to existing *ejido* members. The current situation regarding these rural institutions is highly variable and there are marked differences between different regions and also within them.

One hypothesis in this study is that the revaluing of forests in climate change policy and programs (such as REDD+), with their frequent emphasis on 'good governance', has in some cases led to a revalidation and strengthening of local agrarian institutions. While *ejidos* and communities do not formally constitute a 'fourth level' of government, they represent a very real space for local decision making (Lozano 2012).

8 The number of farms receiving credit more than halved and existing programs tend to favor the wealthier farmers; for example, in 2007, 3.3% of production units received 59.3% of the available credit (Concheiro and Robles 2014).

9 Although Mexico is an ever more urban country (currently 78% according to official figures, see Table 2), the rural population continues to grow in real terms.

10 The area of land dedicated to agriculture in Mexico has been decreasing since 2000 (Rosete-Vergés *et al*. 2014; FAO 2015) and the number of abandoned smallholdings tripled between 1991 and 2007 (Concheiro and Robles 2014).

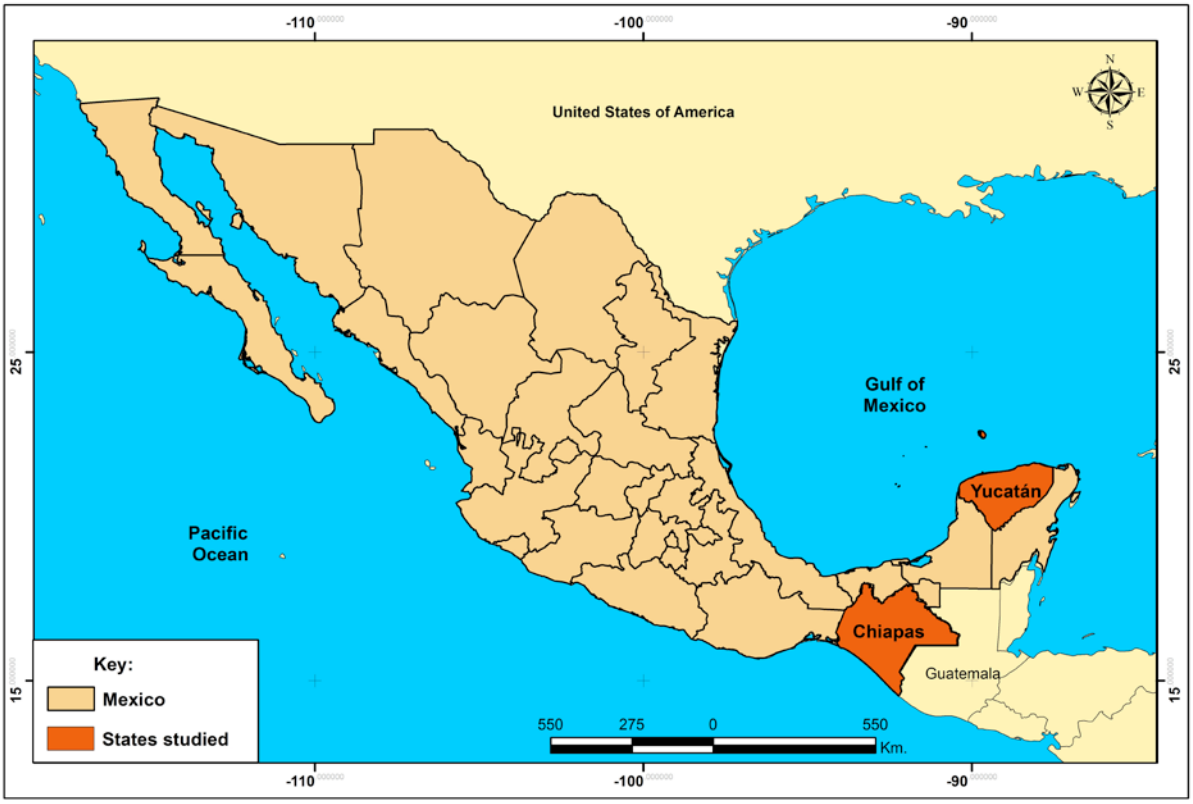
11 *Programa de Certificación de Derechos Ejidales y Titulación de Solares*.

12 http://www.ran.gob.mx/ran/pdf/Delegaciones/SituacionAgraria_Sep2013.pdf

2 Methods and case studies

As part of CIFOR's Global Comparative Study on REDD+ (GCS), the study of 'Multilevel Governance and Carbon Management at a Landscape Scale' was designed to examine how decisions are made by actors across levels and sectors regarding land use, carbon and benefit sharing. Employing a largely qualitative methodology, we carried out interviews with diverse actors about how power is distributed, how information flows, the extent to which decision processes are participatory and whether these processes and outcomes are considered legitimate. The interviews were also designed to understand different perspectives on REDD+ and other low-carbon emission land-use options, what diverse multilevel governance arrangements (institutions and policies) are relevant for decision making about land use, and to what extent they support the effective and equitable adoption of low-carbon emissions land-use options. Finally, through workshops and further interviews, we assessed the carbon outcomes of different possible future land-use decisions, using scenario building and the carbon modeling software 'Carboscen'.

This research was carried out using a comparative case study approach in order to capture a diversity of multilevel governance arrangements as part of CIFOR's GCS project. Globally, the research included 54 case study sites in 11 regions in 5 countries (Mexico, Peru, Indonesia, Vietnam and Tanzania). In Mexico, we selected two states for the landscape case studies, a condition being the presence of REDD+-type projects and a degree of dynamism in LUC dynamics. We selected Chiapas and Yucatán, two states that have above national average forest cover (see Map 1). These states offered interesting comparisons in terms of ecosystems, land-use history and multilevel governance arrangements. In terms of tenure, both Chiapas and Yucatán exhibit similar characteristics, with over



Map 1. Location of states studied in Mexico

Table 1. Chiapas and Yucatán: Forests and tenure

Caracteristics	Mexico	Chiapas	Yucatán
Total land area (´000 ha)[a]	196,437	7,361 (3.74%)	3,953 (2.02%)
Forests (´000 ha) (% total land area)	66,040 (33%)[a]	3,817 (51%)[c]	2,813 (71%)[c]
Ejidos and communities[b] (´000 ha) (% total land area)	100,142 (51%)	4,356 (59%)	2,225 (56%)
Percentage of forests located in *ejidos* and communities[c]	60%	67%	64%
Percentage of *ejido* land formally converted to private property (*'dominio pleno'*)[b]	3%	0.2%	2%
Common-use land (% of *ejido* land)[d]	65%	37%	73%

Sources:
[a] INEGI (2013) Coberturas de uso de suelo y vegetación.
[b] RAN (2013)
[c] Madrid *et al.* (2009)
[d] INEGI (2007)

Table 2. Chiapas and Yucatán: Social and economic characteristics

Characteristics	Mexico	Chiapas	Yucatán
Total population (2015)[a]	119,530,753	5,217,908 (4.4%)	2,097,175 (1.8%)
% Urban population (2015)[a]	78	49	84
% Rural Population (2015)[a]	22.2	51	16
Marginalization index 2010[b]	16.8	31.5	19.6
Indigenous population (% of total)[a]	25,694,928 (21.5%)	1,883,665 (36.2%)	1,371,552 (65.4%)
Population density (people/km^2)[a]	61	71	53

Sources:
[a] INEGI (2015)
[b] INEGI (2011)

half the land and around two-thirds of forests belonging to *ejidos* and communities. However, Chiapas is more rural and poorer than Yucatán (see Tables 1 and 2).

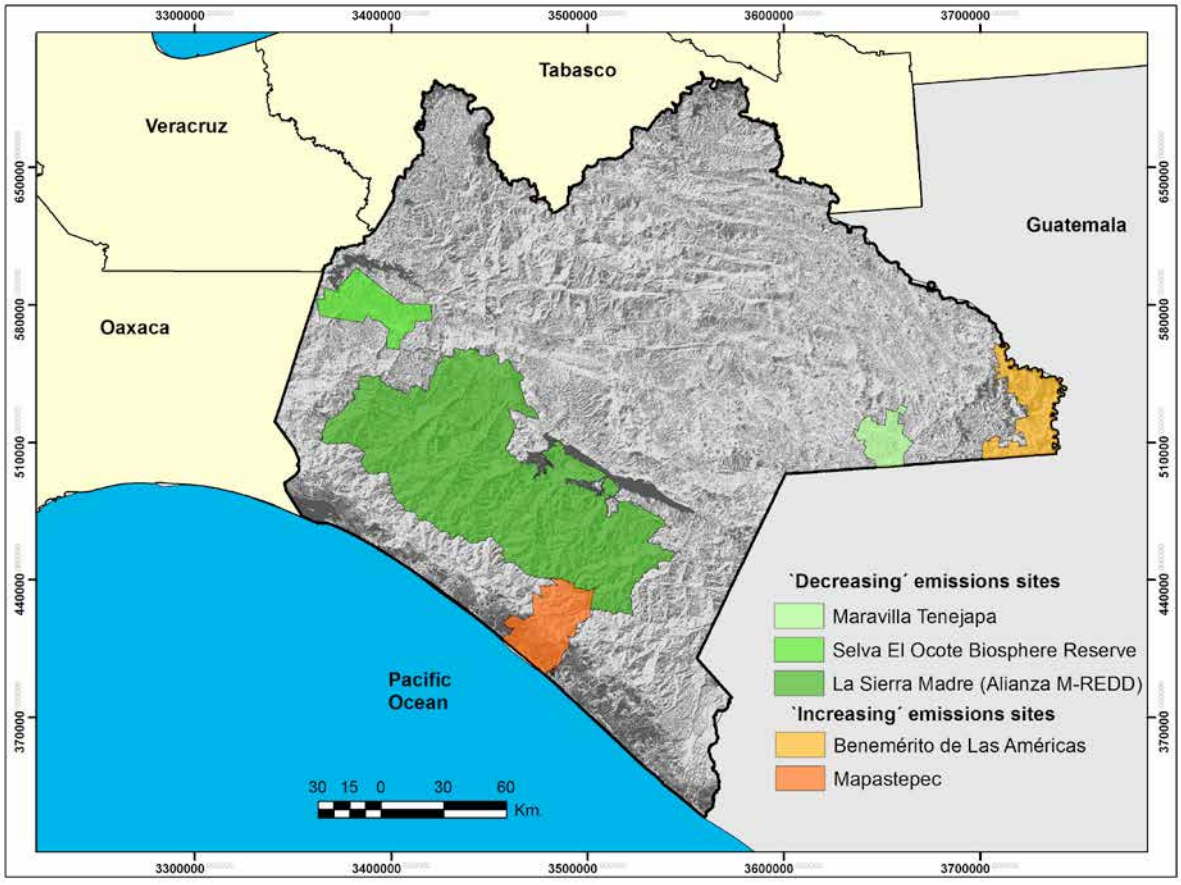
CONAFOR selected Chiapas and Yucatán (along with the states of Jalisco, Campeche and Quintana Roo) for government-led REDD+ early actions in 2010. Regions within these states received enhanced CONAFOR programs from 2010 to 2015, which included payments for environmental services (PES), LED options and reforestation projects. Also, a coalition of environmental NGOs led by The Nature Conservancy (TNC), known as *Alianza México-REDD+*, also included Chiapas and Yucatán in their regions of intervention for REDD+ preparation.

Historically, these tropical southern states have had a distant relationship with central government. Yucatán was best reached by sea from Mexico City until the twentieth century and has always had a sense of political and cultural autonomy separate from the rest of Mexico, with important connections to the United States and Cuba. Much of Yucatán's dry forest was cut down in the nineteenth and early twentieth centuries to make way for sisal (*henequen*) cultivation. The production of this natural fiber created enormous wealth for the landowning families, who built lavish estates, and the state capital, Merida, became the richest city in Mexico for a period at the end of the nineteenth century. Deforestation continued with some commercial forestry extraction in the east of the state

in the mid-twentieth century and high deforestation rates continued into the 1990s, caused most notably by a government deforestation program that ran from 1972 to 1983 (*Programa Nacional de Desmontes,* PRONADE) that aimed to open up ('unproductive') forest lands to cattle ranching. Deforestation rates started to dip this century in Yucatán, and the state now presents complex dynamics of rural abandonment and forest regeneration combined with the growth of commercial agriculture, infrastructure and urbanization, the last two partly related to tourism activities.

Until relatively recently, Chiapas was considered a provincial backwater in the national context, historically governed by a regional, landowning elite, whose descendants are still prominent in regional politics. In contrast to Yucatán, much of Chiapas was not opened up to agricultural activities until the second half of the 20th century with the *campesino* colonization of the tropical lowlands, later shored up by agrarian reform. From the early 1980s, the expansion of cattle ranching had decisive effects on forest cover and the regular crises in the regionally important coffee sector have led to further deforestation in recent decades. The armed uprising in 1994 by the *Ejército Zapatista de Liberación Nacional* (Zapatista Army of National Liberation) put Chiapas on the international map and brought the indigenous question back into the national debate, but regionally it led to further population dispersion as a result of internal political divisions. In the last decade, palm oil plantations have been associated with deforestation in certain parts of the state.

Using interviews with key informants at a state level and a revision of the relevant secondary literature, five sites of land-use change were selected in each state on the basis of whether they exhibited clear tendencies toward 'increasing' or 'decreasing' emissions (although these categories were not corroborated independently). Three sites in each state were chosen to represent decreasing emissions, of which two included REDD+-type interventions. The remaining two sites were selected to represent



Map 2. Selected land-use sites in Chiapas

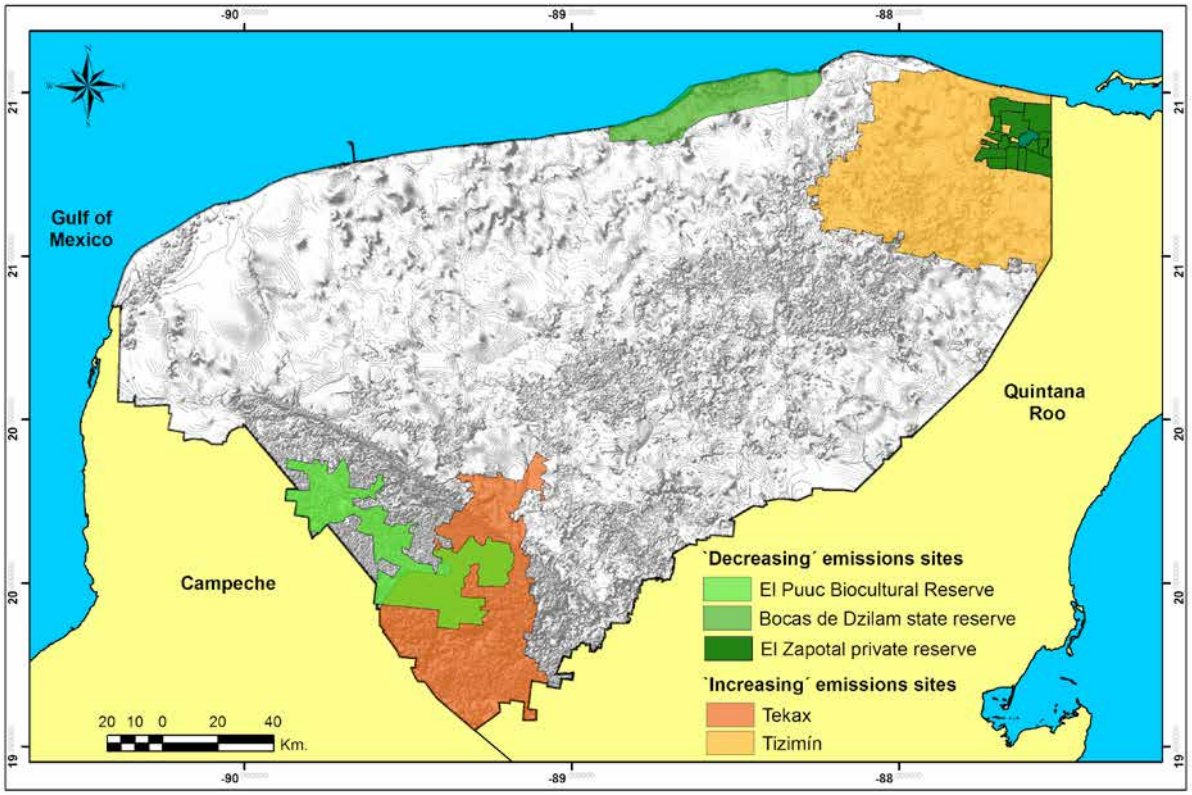
Table 3. Land-use change sites in Chiapas and Yucatán, Mexico

State	Emissions change	Location (site abbreviation*)	Jurisdiction	Surface area (Km²)	Relevant productive activities and programs
CHIAPAS	'Decreasing emissions' sites	Maravilla Tenejapa (Ch-1)	Municipal	546	Coffee, ecotourism, PES, low emissions agriculture
		Selva El Ocote Biosphere Reserve (Ch-5)	Federal (CONANP)	1,013	Coffee, low emissions agriculture
		The Sierra Madre inland watersheds (Ch-2)	Non-Gov. Priority Action Area for *Alianza México-REDD+,* includes 12 whole or part municipalities	10,500	Coffee, pine resin extraction, PES
	'Increasing emissions' sites	Benemérito de Las Américas (Ch-3)	Municipal	1,098	Palm oil and rubber plantations, cattle ranching
		Mapastepec (Ch-4)	Municipal	1,230	Cattle ranching and palm oil plantations
YUCATÁN	'Decreasing emissions' sites	El Puuc Biocultural State Reserve (Y-3)	*Junta Intermunicipal Biocultural El Puuc* (APDT) with support from state Environmental Ministry (SEDUMA)	1,358.5	PES, charcoal, honey, ecotourism
		Bocas de Dzilam coastal reserve (Y-4)	Environmental ministry (SEDUMA), Yucatán state government	690	Cattle ranching, fishing, ecotourism
		El Zapotal private reserve and surrounding *ejidos* (Y-1)	Private property managed by *Pronatura Península de Yucatán A.C.* (regional)	284	PES, reforestation
	'Increasing emissions' sites	Tizimín (Y-2)	Municipal	3,747	Cattle ranching
		Tekax (Y-5)	Municipal	2,770	Commercial agriculture

*Identifies the land use change sites throughout the document and in the Annex

land-use scenarios with increasing emissions. These different land-use sites also represented different political jurisdictions (e.g. municipal, regional and/or protected area, for purposes of comparison see Table 3, and Figures 2 and 3).

Three interview formats were employed, the first for key informants, who were considered experts on the states and regions studied; these interviews were carried out at the beginning of the research process to inform the choice of land-use sites in each state. These semi-structured interviews sought to characterize the selected site in socioeconomic terms and identify on maps the regions with different



Map 3. Selected land-use sites in Yucatán

land-use dynamics. Questions were then asked about actors related to these land-use changes, in both 'increasing' and 'decreasing' emissions scenarios, which led on to questions of relationships and articulation between actors. The interviews generally finished with opinions about the efficacy of different levels of government, decentralization and intergovernmental relations in practice across sectors and levels, as it was often important to consider less formal relationships and actor networks to understand how decisions were reached and policies and programs were applied (or not, as the case may be). These interviews were also specifically conducted with national, state and municipal government actors (see table 4). Portions of these interviews were conducted to assess roles and relations between government levels.

In the sites themselves, two different interview formats were applied depending on the dominant land use in the landscape under study and its relation to emissions changes. Both these formats touched on landscape history, current land use and future options, and provided opportunities to express opinions on government programs and projects, as well as other interventions affecting land use. In the case of 'increasing' emissions sites, more emphasis was put on the history of land use to understand current choices and trajectories and then on issues of legitimacy and actor interaction around current land use. In the case of 'decreasing' emissions sites, the interview format placed more emphasis on the benefit-sharing structures present in the locality, as well as legitimacy, accountability and relationships with outside actors. All three formats asked whether the interviewees had any knowledge of, or opinion concerning, REDD+.

Among many interviewees from the nongovernmental and governmental sector, there was a keen interest in (multilevel) governance, its use as a concept and its specific significance for improved land management. Multilevel governance is increasingly perceived as the solution to a number of problems around the implementation of REDD+, yet there is little theoretical knowledge of the concept or how to systematically improve and monitor governance around forests at different levels. CONAFOR, with

Table 4. Interviews according to sector and region

	Chiapas	Yucatán	National	Totals
Federal government	11	13	1	25
State government	2	4	0	6
Municipal government	7	6	0	13
Ejido	31	29	0	60
International NGO	2	3	0	5
National NGO	8	7	2	17
Producer organization	6	6	0	12
Private company	5	5	0	10
Academics	1	2	1	4
Totals	**73**	**75**	**4**	**152**

international funding, has dedicated resources to the study of 'local governance' (e.g. Torres Zapata 2014), although these studies have had very limited circulation, possibly due to recent funding cuts.

Research methods that rely on information given by interviewees that often have an interest in the outcomes of the processes being studied can have their limitations. Some interviewees may have natural biases that seek to create a positive impression, while others may provide inaccurate information through misremembering certain facts. These risks can be minimized by verifying information in secondary sources (where available), recognizing the significance of repeated statements or opinions across interviews and probing during interviews to confirm asserted facts and opinions. The time permitted for this research did not allow for an ethnographic approach, but in the state of Chiapas, previous research work by two of the authors provided a valuable background understanding of the region. This was not the case in Yucatán, where we relied more on key informants and their networks. Presentations of preliminary research findings in regional fora throughout 2016, as well as two workshops on multilevel governance monitoring, held in priority landscapes in Chiapas and Yucatán in early 2017, were further opportunities to enrich the research presented here. Many of our findings were presented in a national workshop, held in Mexico City in May 2017 and attended by over 50 participants from diverse sectors.

A methodological challenge has been the technical question of measuring deforestation and forest degradation in the states and sites studied. A review of the secondary sources available revealed a wide range of calculations that attest to the diversity of methodologies employed, the scales adopted and the different ways of processing satellite images and classifying forest cover (primary, secondary, etc.). However, the diversity of opinions expressed by interviewees regarding land-use change dynamics was in itself an important finding.

3 Drivers of land-use change in southern Mexico

Over the last few decades, according to the FAO, rates of deforestation have gradually decreased in Mexico (see Figure 1),[13] as they have in other Latin American countries, although this national figure obscures trends specific to certain regions and ecosystems and the question of forest degradation, where information is scarcer. For example, historically in Mexico, tropical rainforests (including cloud forest) have been impacted more than temperate forests (Rosete-Vergés *et al.* 2014), and this trend continues. Some researchers calculate that 95% of Mexico's original tropical rainforest and almost 50% of its temperate forests have been lost (Céspedes-Flores and Moreno-Sánchez 2010).

Between 1970 and 2000, the south-eastern states of Tabasco, Campeche, Yucatán and Quintana Roo suffered the highest deforestation rates in the country (Ellis *et al.* 2015: 3). By the 1990s, Chiapas was included in this group and deforestation rates in Chiapas were among the highest in the country for a period (Céspedes-Flores and Moreno-Sánchez 2010). In Chiapas, deforestation rates appear to have slowed at the beginning of this century to 0.19%, only to increase again between 2007 and 2011 (see Figure 2; Paz *et al.* 2010; Vaca *et al.* 2012; Covaleda *et al.* 2014). In the case of Yucatán, between 1976 and 2000 the deforestation rate was running at 0.8% and the surface area dedicated to agriculture doubled (Céspedes Flores and Moreno Sánchez, 2010), yet in the last 15 years, the deforestation rate has more than halved (see Figure 3).

The major drivers of deforestation and forest degradation at the national level, according to the REDD+ Readiness Plan (R-PP), are land-use change for agriculture and livestock (82%), illegal logging (8%), and forest fire and disease (6%) (Goldstein *et al.* n.d.: 3). In general terms, these national patterns of deforestation are replicated in the two states considered in this research, albeit with different regional particulars and emerging phenomena, such as the coffee rust epidemic in Chiapas and the consequent removal of shade-grown coffee plantations.

Multiple studies confirm the expansion of extensive cattle ranching as an important driver in both states (Covaleda *et al.* 2014; Ellis *et al.* 2015), an activity which continues to be attractive as a flexible, low input activity, where assets can be sold quickly should there be a family emergency. Interviewees in all our case studies mentioned important increases in the prices paid for cattle over the last 2–3 years, leading to a growth in herds. However, a senior representative at the agricultural ministry in Chiapas questioned this:

> Is cattle ranching the main driver of deforestation and forest degradation? No, I believe it no longer is. Perhaps in the past, but not nowadays. There has been a decrease in the state's cattle herd. We are not providing support for new cattle ranchers, only for those who are already established, so they can transition toward semi-intensive ranching. We've been demonized for cattle ranching and oil palm, but those criticisms are outdated or simply mistaken.

In certain regions, the agricultural frontier continues to move into forests, although it is unclear to what extent this is affecting mature forest. Land-use calculations are complicated by the fact that much maize agriculture carried out by peasant farmers in Chiapas and Yucatán is swidden and thus constantly mobile in a landscape of different successional stages. This dynamism can make it difficult

13 Reliable deforestation and forest degradation data is challenging to identify and data sets are difficult to compare. Relevant deforestation and forest degradation data on Mexico, created by Hansen *et al.* (2015), for example, reveal distinct trends from 2001 onwards, although they calculate deforestation rates to be lower.

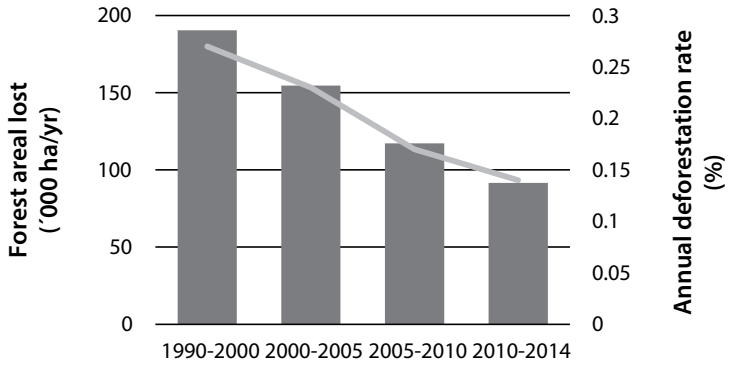


Figure 1. Deforestation in Mexico 1990–2014 according to the FAO
Source: FAO (2015)

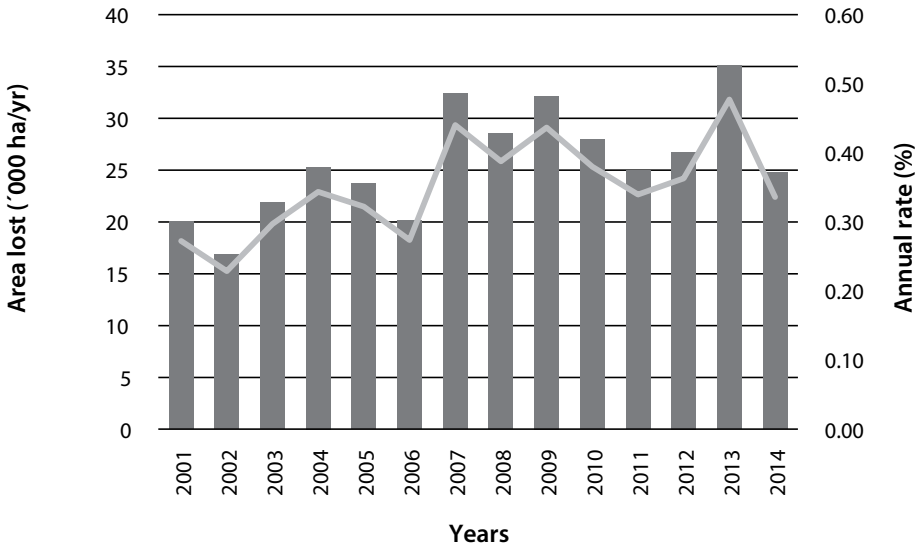


Figure 2. Deforestation in Chiapas 2001-2014 (> 30% canopy lost)
Source: Hansen (2015)

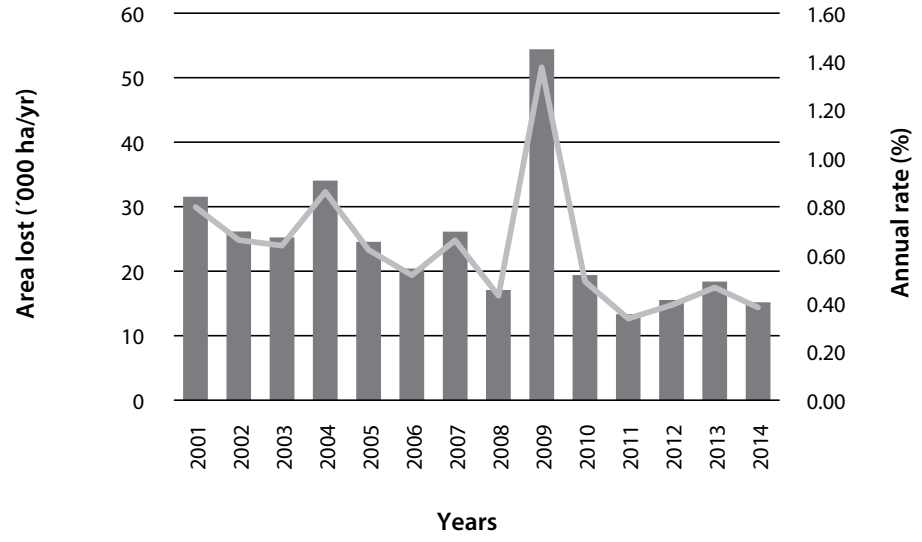


Figure 3. Deforestation in Yucatán 2001-2014 (> 30% canopy lost)
Source: Hansen (2015)

to quantify levels of deforestation and even more so forest degradation (which many informants in Chiapas considered to be the principal problem). A senior employee at the agricultural ministry (SAGARPA) in Chiapas considered that the main driver of deforestation in the state was demographic pressure, which led to new areas being opened for agriculture: "the main driver [of deforestation and forest degradation] is itinerant agriculture. That's what we need to work on". At the same time, he recognized that historic mismanagement of forests in the tropics in Mexico had created a poor precedent and there was a consequent lack of 'forest culture' in the state (see Table 1).

But as our case studies show, oil palm plantations and commercial agriculture are important drivers of land-use change in certain areas in both states. In Chiapas, oil palm plantations were subsidized by federal and state governments during the previous government's term (2006–2012) and this has left an important legacy, not only in certain landscapes, but in organizational processes, land ownership and accrued debt (see Box 1).

In the case of the municipality of Tekax (Y-5), in the Cono Sur region of Yucatán, commercial agriculture has been expanding in recent years due to improved infrastructure and hence access to richer soils as well as possibilities for irrigation. This has led to the dismantling of a number of *ejidos* and has altered tenure arrangements within *ejidos*, where some members have been able to accumulate considerable land. However, it is not clear to what extent this is affecting net deforestation and forest degradation, as this deforestation is offset to a certain extent by the abandonment of land with the temporary or permanent migration to municipal centers. In any case, much of the original forest was

Box 1. Oil palm plantations in Chiapas

The state of Chiapas has seen a strong trend towards oil palm plantations over the past 10 years, and most informants – including all environmental actors – refer to oil palm as an important driver of deforestation and forest degradation, particularly in the Lacandon forest (a REDD+ Early Actions Area). In the municipality of Benemérito de Las Américas (Ch-4), Covaleda *et al.* (2014) identified over 10,000 ha of secondary vegetation converted to oil palm from 2007 to 2012. Local informants, however, were quick to argue that most of the lands converted to oil palm were pastures, not forests. According to SAGARPA (2015), Benemérito has become the municipality with most oil palm plantations in Chiapas (11,010 ha), with the coastal municipality of Mapastepec (Ch-5), another increasing emissions study site, in second place (8206 ha).

The rise in the price of palm oil by over 400% between 2000 and 2011 made oil palm cultivation highly profitable and encouraged its expansion, particularly in the context of limited profits from cattle-ranching (Castellanos-Navarrete and Jansen 2015). After a boom period aided by significant state subsidies (plant distribution, funds for plantation establishment and maintenance), oil palm producers have been facing a crisis since 2014, when international prices fell by 50%, just as new plantations (including those established by the owners of the processing plants) entered the production phase and existing processing capacity was insufficient. Many producers found themselves without a buyer for their harvest, a situation which has aggravated already tense relationships between companies and producers in the sector.

Palm oil companies play a significant role in LUC, as plantation owners but also as buyers, lenders and even political actors. While one Mexican company active in Chiapas has recently signed on to the Roundtable on Sustainable Palm Oil (RSPO), best practices and traceability activities are yet to be implemented, and the environmental impacts of oil palm plantations continue to generate debates.

Debt management emerged in our fieldwork as a severe issue for the sector. Mid-scale producers (5–20 ha) are highly indebted and dependent, and are now facing a 'bust' scenario after the initial boom. However, government subsidies for the establishment of oil palm plantations persist, while there are plans to establish new processing plants in the Benemérito region, where producers have had to travel 200 km to sell their harvest.

Table 5. Drivers of deforestation and forest degradation in Chiapas and Yucatán (according to recent studies)

Chiapas[a]	Yucatán[b]
Cattle ranching and agriculture	Growth of urban centers and infrastructure
Loss of soil fertility	Expansion of agriculture and cattle ranching
Demand for firewood	Agroindustry
Illegal logging	Growth in rural population
Coffee rust	Agricultural subsidies
Forest fires and disease	Changes in land ownership
Open-cast mining	

Sources:
[a] Covaleda *et al.* (2014); [b] Ellis *et al.* (2015)

cut down in the 1970s and 1980s as part of a national forest felling program (PRONADE), and as a result, much of the current tropical deciduous forest is secondary.

Illegal logging was considered an important driver of forest degradation by a number of those interviewed, particularly in Chiapas. In Yucatán, interviewees identified illegal charcoal production as a similar threat. The precise impact of illegal extraction on deforestation and forest degradation is notoriously difficult to estimate, but it was considered significant in some of the case studies. At a national level, the president of Red MOCAF, an association of community forest organizations,[14] considered that 70% of the timber sold in Mexico is illegal, and represents 15 million m^3 a year. The reasons given for the persistence of these illegal activities varied, but centered on the government's errors and unfulfilled responsibilities. As one independent forest technician commented, with reference to Chiapas: "There's often more interest in 'keeping the peace' than protecting the forests, and the illegal cutting continues; there's no governability." There was almost universal consensus that the federal environmental protection agency (*Procuraduría Federal de Protección al Ambiente*, PROFEPA) was unfit for purpose, with only a dozen agents operating in Chiapas, a state with an area of over 70,000 km^2.

As well as the issue of vigilance and inspection, there were also many comments regarding the difficulty of obtaining government permits for cutting timber and the overly bureaucratic process where all extractive activities can be cancelled over a technicality (Carrillo and Velasco 2016: 38-39). In Chiapas, only a tiny fraction (< 1%) of the 4 million ha of forests is officially recognized as being 'under management' by the environmental authorities and thus eligible for extraction permits (CONAFOR, pers. comm. 2016).

Given these bureaucratic difficulties and weak vigilance, many forest owners decide that it is easier to risk illegal extraction, especially when there is strong local demand for timber, often from small-scale carpentry workshops (e.g. Ch-2).[15] Others pointed to corruption and the payment of *mordidas* (bribes) to police or PROFEPA agents; in Mapatespec (Ch-5), informants mentioned the ease with which certain influential families were able to freely transport illegal timber. It is significant that in Chiapas, a statewide alliance of regional forestry associations (ARS), – *Bosques y Gobernanza* – chose illegal logging as its primary area of negotiation with the government. At a national level, it is the nongovernmental actors, such as Red MOCAF, CCMSS and the National Union of Community Forestry, who are promoting a 'Strategy for Forest Legality'.

14 Red Mexicana de Organizaciones Campesinas Forestales, A. C.

15 See Annex for more details on each land use change site.

Forest fires were considered significant causes of deforestation and forest degradation by our informants in sites with drier climates, but at the same time the experience and persistent risk of forest fire has been the catalyst for multiple forms of coordination and improved multilevel governance in both the states included in this study. The director of climate change at the Yucatán state government's environmental ministry calculated that every year 50,000–80,000 ha of forests were lost to agricultural fires (although official information does not bear this out, see CONAFOR 2016). Other interviewees in the state shared the impression that forest fires were becoming the most significant causes of deforestation and forest degradation due to increasing periods of drought and careless burning related to swidden agriculture. One of our case studies in this region, Tizimín (Y-4) is the municipality in Yucatán that has lost most mature forest to fire. As a result, the environmental NGO Pronatura Península de Yucatán has trained and equipped community forest monitoring brigades in and around the Zapotal private reserve (Y-1), who are in touch with similar brigades in the neighboring state of Quintana Roo, as well as with CONAFOR and the federal agency, *Protección Civil*. The widespread wildfires that ocurred in Chiapas in 1998 and again in 2003, which seriously affected two biosphere reserves, forced a series of collaborative processes and interactions at all levels to address the problem, leaving a legacy of consolidated multilevel governance arrangements around fire prevention and control. This, combined with regional capacity building, has led to a highly significant drop in the areas affected by wildfires in Chiapas.

In the case of Yucatán, which is dominated by Caribbean weather systems, it was the occurrence of hurricanes that appear to have caused the most sudden deforestation and forest degradation in recent years, particularly Hurricane Isidore, which hit the north Yucatán coast in September 2002 and, according to informants in this region, destroyed extensive mangrove forest and inland tropical deciduous forests. This event and the subsequent financial assistance provided by USAID and the United Nations Development Programme (UNDP), promoted organizational processes around land-use governance, especially between municipalities and federal ministries, some of have are still ongoing. An emerging cause of deforestation of mangrove forests on the north Yucatán coast is the illicit harvesting of sea cucumbers (*Holothuroidea*), driven by demand from Asian markets. The processing of this marine invertebrate often takes place in clandestine camps within mangrove forests, leading to deforestation, degradation and contamination.

The identification of processes that improve land use or encourage the restoration of forest cover can be difficult. In the case of swidden agricultural landscapes, although the situation may appear stable in the numbers, it is in fact very dynamic, with parallel processes of forest clearance and recovery in the different stages of succession. In some regions, particularly in Yucatán, it was clear that emigration and the abandonment of agricultural land was partly responsible for revegetation and afforestation. The collapse of the market for henequen in the 1970s has meant the gradual return of almost 450,000 ha of plantation lands in the center of the state to tropical deciduous forest. In Chiapas, emigration from rural areas also appears to be linked to processes of revegetation, although the return of immigrants from the USA after the global financial crisis of 2008 may be related to the uptick in deforestation rates.[16]

A fundamental precedent in the Chiapas case for promoting better land use and conserving forest cover has been the establishment of Protected Areas (PAs), often initially as state government initiatives and later expanded and consolidated under federal legislation. Federal PAs, mostly biosphere reserves, now account for around 16% of the state's area, and the majority of them are legally inhabited by settlers who arrived in the area before the creation of the reserves. Despite conflicts and unresolved tenure issues, these reserves have generally managed to maintain deforestation rates below those of the surrounding areas.

16 This increase – if not its causes – is confirmed by Paz et al. (2010) and Hansen et al. (2015).

In Yucatán, PAs were decreed later and on a smaller scale, essentially along the state's coastline to protect mangroves. The Puuc Biocultural State Reserve (Y-3) is a recent addition to this conservation strategy, with the protection of 136,000 ha in the Cono Sur region of Yucatán, in the center of the peninsula. The Zapotal private reserve (Y-1) – owned and managed by a national environmental NGO – has been important for conserving existing forest cover and exerting a positive influence in the surrounding areas, by promoting buffer areas around the reserve through investment in PES and in local vigilance.

As we shall see, diverse government programs and international financing aimed at reducing emissions have also had an impact on land-use change. PAs, complemented by CONAFOR-PES schemes, were present in all the selected decreasing emissions sites in this study and are relevant as rehearsals for future REDD+ implementation (and benefit sharing).

4 Power and influence over land use and forests

This chapter examines the distribution of powers between levels and across sectors, and seeks to explain why 'business-as-usual' largely prevails in land and forest use. The key findings in this chapter are that decentralization in Mexico has had limited effects to date on land use and forests, and that there are contrasts between *de jure* faculties and *de facto* practice. Looking at governance institutions around land use and how these operate in reality, we observed fundamental contradictions between agricultural and environmental policies, which are neatly expressed in the divergent aims (and the respective budgets) of federal programs, which look to enhance production on the one hand and protect forests and the provision of environmental services on the other. This is despite the fact that much recent legislation – particularly the Climate Change Law and even different sectoral programs – make much of the importance of inter-sectoral collaboration, as does the National REDD+ Strategy. But the desired 'territorial approach' continues to be frustrated by different views of development, represented by sectoral and results-based visions, where territorial particularities are not considered a priority. We also consider some of economic processes that both shape agricultural policy and sometimes go beyond institutional power and authority. We conclude by looking at the obstacles to improved inter-sectoral and multilevel collaboration.

4.1 Background and legal framework

Mexico has a history of centralized natural resource governance, a feature that largely emanates from the nature of its current political constitution, first promulgated in 1917 in the context of a national revolution. Article 27 of the constitution asserted the public ownership of all of Mexico's natural resources, including subsoil resources. This article sought to renationalize the country's resources after the liberal dictatorship of Porfirio Díaz (1877–1911) and the loss of control over forests, minerals and petroleum, through concessions to foreign companies. With respect to forests, from a historical perspective, the legal framework and policy have swung between two extremes. At one extreme, forests have been removed from local control through forest concessions and a policy of forestry bans and fines, but at other times (in the 1930s and again in the 1980s) federal government has devolved certain powers over forests to the *ejidos* and communities with important forest cover (Chapela 2017). Forests in Mexico thus remain "political landscapes" (Boyer 2015) and disputed spaces, and the relationship between forest inhabitants and their forests continues to be mediated by multiple laws, required analyses, permits and other forms of oversight. Many interviewees considered forest policy in Mexico to be highly centralized and historically unresponsive to regional realities, while others emphasized the critical role that *ejidos* and agrarian communities play in deciding land use and forestry management in practice.

The creation of the CONAFOR in 2001 was an important step in the consolidation of forest policy in Mexico. This decentralized body has a certain level of autonomy within the environmental ministry and its 'commissioner' is appointed by the president. The CONAFOR budget grew significantly during the administration of President Calderón (2006–2012), particularly in PES, although recent cuts have seen budget levels fall to pre-2006 levels and staff numbers considerably reduced. Analyzing official data for the 2017 public budget in Mexico provides some idea of the 'weight' that each sector has in determining land-use outcome. For example, SAGARPA (the agricultural ministry) was set to receive

MXN 62,158 million[17] (1.14% of public budget), while SEMARNAT (the environment ministry) received MXN 35,978 million[18] (0.66%). Within the environmental sector, the budget is distributed among the different institutions under the ministry's responsibility. CONAFOR, for example, received 10.6%, the National Commission for Natural Protected Areas (*Comisión Nacional de Áreas Naturales Protegidas*, CONANP) 2.8% and PROFEPA, 2.75%. This means that in 2017 the federal agricultural sector received a budget 16 times greater than the forestry sector.[19]

The current forestry law – *Ley General de Desarrollo Forestal Sustentable* – was promulgated in 2003. This law officially sought to integrate a sustainable production focus into national forestry legislation, but it has also been the source of diverse opinions and been regularly altered over the last 14 years (Chapela 2017). From 2009 to 2014, a participatory body attached to CONAFOR, the National Forestry Council (CONAF), was charged with revising forestry legislation and duly carried out a process of consultations with diverse sectors until 2014, when it put forward a series of proposed reforms. These were effectively sidelined by the lower house and, after mid-term elections, dropped from the legislative agenda altogether in 2015. The following year, a new, unrelated proposal for reforms to the forestry sector was put forward and cleared the lower house with no public consultations. In 2017, CSOs managed to delay the vote in the senate to allow for a period of consultation on the proposed reforms, which aim to recentralize powers around forestry, reduce participation and largely ignore the recommendations of a 6-year process of public consultations (Chapela 2017).

Forestry is an attribution of all three levels of government, although federal forestry laws are 'concurrent' and thus applicable to all levels. State and municipal levels were seldom cited in interviews as important actors in decisions taken around land use and forest management, despite possessing attributes in these areas. Moreover, the legal framework is unevenly applied in practice because of clashes of interests, corruption or insufficient institutional capacity; as one informant from an international NGO working in Yucatán commented, "if the law were applied in Mexico, there wouldn't be any deforestation". This is because *de jure* all unplanned deforestation is a crime; a land-use change permit is required from the Ministry of the Environment to remove forests for agriculture, but vigilance is minimal and many do not go to the trouble of obtaining the correct paperwork. At the same time, government criteria for the identification of forest lands do not always coincide with reality on the ground.

Laws outside the forestry sector also change over time and can favor certain land uses over others. For example, the reform of the national mining law in the context of the signing of NAFTA established mining as "public interest", stating in its article 6 that mining activities are preferential over any other land use (including conservation). This prerogative has been furthered in recent legal reforms to the energy sector, which have (controversially) allowed fracking.

4.2 Decentralization

Decentralization may be considered technically as the delegation of functions and powers from a central authority to regional and local authorities as well as the opening up of spaces for participation from below. It is thus a double process, a top-down administrative act and a political event that can lead to a redistribution of powers among levels (Larson *et al.* 2007). However, research on particular country cases and sectors has proven that the amount of power actually redistributed can vary

17 USD 3265 million (7 November 2017).

18 USD 1890 million (7 November 2017).

19 http://www.transparenciapresupuestaria.gob.mx/es/PTP/infografia_ppef2017

enormously (Ribot *et al.* 2006), and is sometimes dependent more on concrete relationships between actors (Andersson and Ostrom 2008) or on the sequence in which different sectors are decentralized (Falleti 2005).

Since the 1980s, like most Latin American countries, Mexico has enacted reforms that have decentralized responsibilities in a number of areas and created 'deconcentrated organisms' for different subsectors, such as CONAFOR, CONANP, CONAGUA, etc. At the same time, many new participatory spaces have been established through new legislation over the last two decades. Sustainable development councils were set up at different levels with the promulgation of the new Sustainable Rural Development Law in 2001, along with similar councils for watershed and protected area management. New climate change legislation and REDD+ early actions have extended this pattern with the creation of new participatory spaces at state and federal level.

Nevertheless, there was a strong sense in our interviews that decentralization has so far failed to deliver a significant redistribution of powers among the different levels. Institutional interviewees were almost universally skeptical regarding the extent to which decentralization has really changed the relationships between government levels over the last three decades. Despite changes to the legal framework, many key informants pointed to a strong centralizing instinct and a vertical political culture in Mexico that has inhibited the potential of decentralizing measures that are already on the statute books. The under-minister for forestry in Chiapas pointed to jurisdictional problems, explaining that in practice the state government lacks territorial planning power (*ordenamiento territorial*) and is not empowered to address tenure issues (that correspond to the federal *Secretaría de Desarrollo Agrario, Territorio y Urbano*, SEDATU). An NGO director in Chiapas considered that positive change was more dependent on political will, rather than the faculties afforded by decentralization: "The difference is made by individuals, and is not in the nature of the institutions themselves." This observation came up frequently, that change and innovation were dependent on certain individuals, whose actions and presence – rather than the prevailing institutional arrangements – were key to the success (and permanence) of new initiatives.

Some interviewees even considered that the decentralization measures of the late 1990s and early 2000s had led to heightened confusion over the roles of different levels and sectors of government in different areas, particularly after the change in political party in the 2000 federal elections. Interestingly, with the return of the PRI in 2012, a number of key informants identified a process of recentralization in different sectors, a phenomenon associated with a return to a more authoritarian style of government, participation 'fatigue' after the initial effervescence of the early 2000s and the official argument that the return of certain functions to the federal level reduces corruption at lower levels of government.

One senior representative of an international development agency in Yucatán took a somewhat fatalistic stance:

> Decentralization will never exist in Mexico, because the foundation of Mexican federalism is 'presidentialism'. The federal government holds 90% of the budget, it's that simple […] The political control, exercised through budget management, will not end. Conceptually, the nation is the proprietor of all lands in Mexico; any discovery of new resources must pass through a federal concession, unlike in the USA, for example. There will simply never be decentralization in Mexico.

The Director for Sustainable Planning and Policy in Yucatán's environmental ministry commented: "Decentralization is nice on paper, but the distribution of financial resources is still missing." This question of budget distribution came up frequently and interviewees reiterated that most of the national budget is retained at the federal level and, even when it is channeled to the state government level, the role of this second level of government is purely operational as the resources are already earmarked.

This was the case for the Chiapas state agricultural ministry (SECAM), 80% of whose budget came from SAGARPA. As one senior official from the federal environmental sector concluded, "There is no Chiapas agricultural policy, it is centrally directed." The same observation was made for forestry: in Chiapas, despite having an under-minister for forestry, there is no forestry policy as such because there is no significant budget to support actions and no state mechanism for raising taxes on land use and forestry activities. The state government in Chiapas even had difficulties in honoring its contribution to CONAFOR's matching-funds PES scheme in the Lacandon Forest. As the Yucatán minister for the environment said to us: "Decentralization must be accompanied by the corresponding funds, otherwise it is no more than pretty words. Our challenge is to get better efficiency with fewer funds."

A second group of reasons offered by interviewees for the failures of decentralization was related to questions of mistrust and the federal perception that state and municipal governments were unable to fulfill their functions adequately. Others mentioned the importance of building capacities at a state level and spoke of the need to 'mature' state institutions. As a researcher in Chiapas commented: "The negotiations are always a little 'dirty' as the federal institutions don't really trust the abilities of state government institutions." Obviously, the lack of budget control is a reflection of this mistrust, along with reluctance on the part of the federation to 'cede control' over processes.

This persistent centralizing instinct was perceived to be particularly the case with regards to natural resources and forestry. As the regional head of CONABIO in Chiapas commented: "Virtually all faculties related to natural resource management […] are retained by federal government in practice. The state government's role is limited to discourse, but is not evident in practice." Even a federal employee in the Chiapas CONAFOR offices considered that central offices (in Guadalajara, Jalisco) set the agenda and explained the difficulties of getting existing information around local needs and conditions into the discussion and the planning process. A regional NGO worker working on REDD+ considered that the situation with regards to decentralization was "still very much in diapers in Chiapas and thus CONAFOR remains the most important actor because of weaknesses of the [forestry] sector in Chiapas".

4.3 Federal government

In this section, we give a brief overview of the ways in which federal payments from the agricultural and environmental sectors seek to promote particular land uses by incentivizing certain activities, from food production to forest conservation. In our interviews, the agricultural ministry (SAGARPA) was associated with deforestation and forest degradation, largely because of its programs that pay out monies directly to farmers on the basis of surface area or productivity, such as ProAgro and PROGAN. On the other hand, the CONAFOR was the federal agency most associated with improved land use, principally because of its PES programs.

4.3.1 Agricultural subsidies and land-use change

The ProAgro program (which in 2013 replaced the long-running PROCAMPO program launched in 1994) is currently the largest government agriculture program in Mexico and is administered by SAGARPA. In 2016, this ministry invested over MXN 10 billion,[20] benefiting nearly 2 million farmers and supporting 11.4 million ha of maize production (SAGARPA 2017). The PROCAMPO program was originally conceived as a subsidy that would buffer the effects for small farmers of Mexico's entry into the NAFTA in 1994. It includes a sliding scale of payments that would appear to be pro-poor, offering higher payments to farmers with < 3 ha. However, large scale commercial operations are also eligible for support and although the amount paid per hectare is half of that paid to small-scale farmers, there is no limit to the agricultural area that can be included in the program.

20 USD 540 million (7 November 2017).

According to Fox and Haight (2010), who undertook an extensive study on the effects of PROCAMPO and other agricultural programs in Mexico, these programs have served to increase rural inequality, as in practice the program is biased toward larger farms and has ended up excluding large parts of its target population. According to these researchers, despite this program, rural employment continues to fall and the amount paid per hectare does not compensate for the low prices that maize now commands, owing to the gradual flooding of the market with US maize flour (Fox and Haight 2010). In 2016, ProAgro payments were made for approximately half the arable area in Chiapas and in the case of Yucatán, for around a third of the area dedicated to agriculture (FAO 2015; SAGARPA 2017).[21] A Global Environment Facility (GEF) consultant in Yucatán considered it "absurd" that SAGARPA invested so much money for "agriculture on karstic limestone". He continued:

> what PROCAMPO does is pay for burnt fields, since one of the criteria to transfer funds is that the field be 'ready' for sowing. PROCAMPO provides MXN 1,500 per year per hectare.[22] We tried to address this with ASERCA [*Agencia de Servicios a la Comercialización y Desarrollo de Mercados Agropecuarios*]. We took them out to see the catastrophe they were creating and we came to an agreement with ASERCA and the Small Donations Program, that for every burnt hectare they would fund, there would be a hectare in conservation. However, while we were investing up to USD 400,000 per year, PROCAMPO kept fomenting agricultural fires with MXN 80 million per year.[23]

Cattle ranching is also subsidized by the SAGARPA's PROGAN program[24], which aims to boost national productivity by paying a fixed amount per head of cattle. In Chiapas, over half the pasture land in the state (nearly 1.1 million ha) was supported by this program in 2015, and in Yucatán this figure reached 75%.[25] PROGAN has been widely criticized for emphasizing increasing cattle herds over incentivizing the intensification of cattle ranching. As a representative from a large private cattle firm in Mapastepec stated: "There is no SAGARPA support for intensification programs."

Support for the intensification of the cattle raising has come from the environmental sector and environmental NGOs, and has been more focused on regions within and around PAs. These intensification efforts have had limited success, sometimes because *ejido* landholdings in many tropical regions are still sufficiently large (≥ 20 ha) as to allow for extensive techniques. In parts of Chiapas, there is sufficient rainfall to permit pasturing all year around, without the need for fodder or industrial feed. Due to the drier climate in Yucatán and the poorer soils, cattle can only survive the dry season if given cattle feed or through forest-pasture systems. For many *campesino* cattle ranchers, the activity is part of a range of livelihoods strategies and the establishment of these forest-pasture systems requires investment and labor that many farmers do not have or are reluctant to risk. At the same time, as mentioned by one environmental NGO in Yucatán, which operated successful cattle-ranching intensification programs: "As in all projects dependent on external funds, when the money ended we were no longer able to follow up on activities."

The precise relationship between agricultural subsidies and deforestation is beyond the scope of this study, but many of those interviewed – particularly from the environmental sectors – considered that there was a positive correlation. While some academic studies would seem to support this view (e.g. Schmook and Vance 2009), the effects of these subsidies on forest cover are difficult to gauge, as the calculation involves similar hypothetical aspects to 'avoided deforestation' estimations (that is,

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21 According to FAO (2015), the arable area in Chiapas is just over 1.4 million hectares and in Yucatan it is just under 300,000 hectares.

22 USD 80 (7 November 2017).

23 USD 4.2 million (7 November 2017).

24 *Programa de Producción Pecuaria Sustentable y Ordenamiento Ganadero y Apícola.*

25 Information provided by the *Subdirección de Vinculación Operativa*, part of the Coordinación General de Ganadería, SAGARPA April 2016.

what would have happened in the absence of payments?). Importantly, across the sectors there is no consensus on the precise causes of deforestation and forest degradation, and this in itself impedes cross-sector collaboration.

4.3.2 Federal protected areas

The history of PAs in Mexico, especially the establishment of biosphere reserves, is important for understanding different land-use trajectories (and, as we shall see in the following chapter, for current coalitions for change). In the global context, Mexico was one of the first countries to decree national parks, but in the second half of the 20th century it was slow to expand its protected area system and did not have a federal ministry dedicated exclusively to the environment until 1995. But over the last 25 years, the surface area with legal protected status has grown rapidly, from 2.4% of the country in 1990 to more than 13% in 2015, which is the international average for terrestrial protected area coverage.[26]

The creation of the National Commission for Natural Protected Areas (CONANP) in 2000 institutionalized and, to some degree, consolidated conservation policy in Mexico. Although reserve budgets have always been insufficient, reserve directorates have access to nationwide sustainable development and temporary employment funds[27], and increasingly international funding, which has facilitated the presence of field staff and promoted LED initiatives. While most of these projects have had limited success and follow up, these funds have aided and enhanced the legitimacy of the CONANP in its respective areas of incidence and enabled interaction with local populations.

The CONANP relies principally on the Management and Conservation Programs that every federal reserve should have in place within 6 months of their creation (however, some federal reserves still do not have published management plans). This instrument defines the activities that are permitted and prohibited in different zones of the reserve. Core zones prohibit all activities apart from scientific research, while other zones permit human settlements, 'sustainable' agriculture and agroforestry. The power and influence that the CONANP has to ensure that these management plans are respected is limited by other land-use agendas at different scales, from hunting and extraction by local inhabitants in zones where these activities are not permitted, to legal mining operations within the reserve. Management plans are generally ambitious and, as one would expect, conservationist in character, generally with insufficient detail on future territorial development. This means that livelihoods' practices and aspirations sometimes clash with conservationist goals. There have also been brushes with other federal ministries – particularly SAGARPA – which sometimes pursue policies that threaten conservation goals.

In Chiapas, 16% of the state's territory has been incorporated into some category of federal protection and there are seven biosphere reserves. In Yucatán, federal reserves are more limited in extension (3.7%) but the state government has decreed its own PAs, particularly in coastal areas, meaning that almost 12% of the state is currently protected. In both these states, but particularly in Chiapas, the CONABIO's biological corridors project – an initiative originally funded by the GEF – has further consolidated protected areas, concentrating actions on areas with the potential to ensure connectivity between different PAs. As we shall see in the following chapter, CONABIO's role has evolved from an inter-ministerial commission intended to inform decision making around natural resource use in different government sectors, to a territorial development agency that seeks to build alliances and coordinate actions in biologically rich regions in both Chiapas and Yucatán.

26 See http://wdi.worldbank.org/table/3.4 and http://www.conanp.gob.mx/regionales

27 The Sustainable Development for Conservation Program (PROCODES) and the Temporary Employment Program (PET).

4.3.3 CONAFOR's PES program

CONAFOR's PES program has had some influence over land use and forest in recent years and has been an important instrument for strengthening federal PAs, as the CONAFOR scheme has overlapped to a large degree with these reserves. In the Latin American context, Mexico has been a pioneer in PES, implementing the first federal program in 2003 for hydrological services and then soon opening it up to carbon capture and biodiversity conservation. Although the initial idea, promoted by the World Bank and Inter-American Development Bank, was to transition from a federal subsidy to an environmental services market, the Mexican government was reluctant to lose control over a program that soon began to acquire political relevance. Pressure from producer organizations influenced the design of the program, favoring *ejidos* and communities over private property and increasing the payments per hectare. As the program grew significantly during the presidency of Felipe Calderón (2006–2012), it gradually responded more to a poverty alleviation agenda than to strict environmental criteria (McAfee and Shapiro 2010; Alix-García *et al.* 2012 ; Cameron 2015; Ezzine-de-Blas *et al.* 2016).[28] When CONAFOR started to renew the first 5-year PES contracts in 2008, it became clear that the scheme was turning into, and being perceived as, another federal subsidy, a "*PROCAMPO forestal*" as one interviewee stated, in reference to the agricultural subsidy paid out to maize farmers. At the same time, however, CONAFOR-PES has reaffirmed the role of social property governance structures (*ejido* and community assemblies) by channeling payments through the agrarian authorities, providing funds for local governance improvement (specifically, the redrafting of *ejido* internal rules and territorial planning) and demanding ever more community participation in forest protection (figure 4).

Among our interviewees, this national CONAFOR-PES program was the government program most associated with improvements in land management and in all our 'decreasing emissions' sites, the payments were present to a greater or lesser degree. Interviews revealed diverse opinions as to the true efficacy of these payments in addressing the causes of deforestation and forest degradation in the different regions where the program had been implemented. While most interviewees, both local and regional key informants, recognized that CONAFOR-PES had slowed deforestation in the areas receiving payments, there were doubts as to the 'additionality' of the program, given that there was insufficient targeting of high risk areas for deforestation. Certainly, in the forested landscapes of Maravilla Tenejapa (Ch-1), with its karstic geology, PES was undeniably the most rational land-use choice, given that the thin soils have very limited agricultural potential, and the absence of surface water sources meant that cattle ranching was extremely difficult. In these cases, it is unlikely that the area would have been deforested in the absence of PES. However, as the director of an NGO working in this region said: "The problem with CONAFOR-PES is that it can turn the forest into a hostage." In interviews with beneficiaries, they frequently mentioned the possibility of "inevitably" having to cut down the forest currently receiving PES if the 5-year contract were not to be renewed by CONAFOR (see Agrawal *et al.* 2015). For example, an *ejido* leader in Maravilla Tenejapa commented:

> Practices have changed considerably over the last 6 years with PES. People have stopped clearing forest and almost stopped burning. But it is almost as if PES are understood as the government 'renting' the forested lands for a period of time, and when the forests are 'returned' to the *ejido* members, there would no longer be a 'boss' around [i.e. the government] and they would clear the forest if necessary.

This points to a growing dependence on these 'environmental subsidies', particularly in the cases where PES had come to represent as much as half of annual household income. As the president of an

28 According to Cameron (2015: 16), deforestation risk was only one criteria amongst many that was considered by CONAFOR and represented less than 10% of the final evaluation. Ezzine-de-Blas *et al*. (2016) state that in 2010, CONAFOR used 26 different criteria to determine which properties would receive PES.

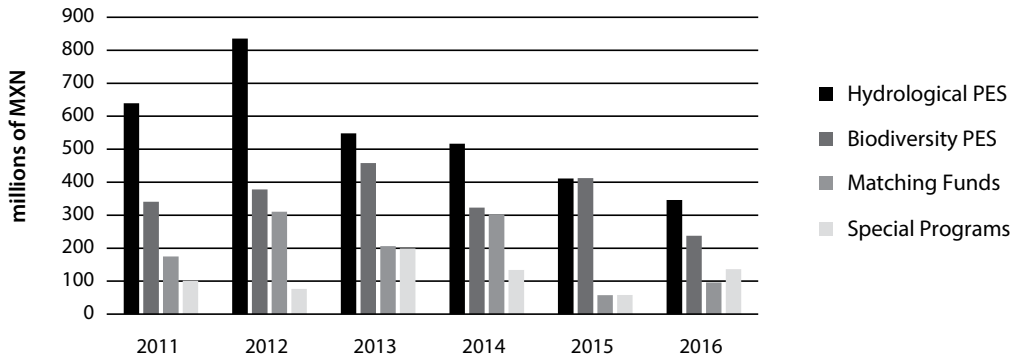

Figure 4. PES investments in Mexico, according to amounts assigned for 5 years 2011-2016

Source: Information provided by the Department of *Enlace de Análisis y Gestión de Mecanismos Locales de PSA*, part of the *Gerencia de Servicios Ambientales del Bosque*, CONAFOR, April 2016.

ejido union in Ocozocuautla (Ch-2) commented, PES simply adds to the existing dependence that rural producers already have on other federal subsidies, such as ProAgro and PROGAN.

In our interviews, forest owners receiving payments (mainly *ejidatarios*) were – unsurprisingly – almost unanimous in their approval of the program, although there were some complaints about the low amounts paid per hectare. Certainly, in many of the sites we studied, it was clear that PES could not 'compete' or begin to cover the opportunity costs for other potential land uses (if viable). In the municipality of Tekax (Y-5) in Yucatán, where commercial agriculture threatens forest cover, payments for hydrological services amounted to around MXN 350[29] per hectare whereas soya production could produce profits of between MXN 2000 and 5000 per hectare.[30] In these contexts, PES was only really attractive to those who did not possess sufficient capital to invest in farming their land or belonged to *ejidos* with extensive common-use forests under little pressure from other potential uses.

4.4 State government

In general, the Chiapas and Yucatán state governments were considered to have a considerable mandate to influence land use and forests but to be lacking capacities and adequate budgets to fulfill this mandate. In agriculture, as we have seen, state ministries largely reproduced and implemented federal policy in their respective territories. However, Chiapas and Yucatán offered interesting contrasts regarding the influence of their respective environmental ministries in shaping policy in different territories. In our interviews in Yucatán, the state environmental ministry – SEDUMA – was attributed with more 'authority' in land-use decisions than its counterpart in Chiapas. Indeed, the situation in Yucatán was seen as an example of what can be done in unfavorable budget circumstances, when there is a skilled, knowledgeable and well-connected minister in place, serving a second 6-year term, permitting a continuity in policy that is rare at state level. He has positioned himself (and his ministry) as a key facilitator and enabler of a number of important initiatives in the state, such as a strategy for state PAs, the protection of cenotes and underground river systems and recently, an Inter-Municipal Board. As we shall see, this innovative governance institution seeks to bring municipal governments together around territorial LED.

In Chiapas, however, the political moment and culture are distinct. The current 'green' party (*Partido Verde Ecologista de México*, PVEM) government is seriously indebted, yet the governor spends

29 USD 18 (7 November 2017).

30 Between USD 100 and USD 260 (7 November 2017).

disproportional amounts of money on propaganda in an attempt to retain legitimacy. Despite a discourse in favor of conservation, most of our interviewees considered that the state government in Chiapas and particularly the environmental ministry had little influence around land use and forests and that understanding and interest in REDD+ was limited. As one REDD+ consultant in Chiapas commented:

> The adoption of REDD+ [by the Chiapas state government] has served as part of a public relations campaign. But this green discourse is contradicted by state development policy, with its continued support of oil palm plantations, cattle ranching, etc., without really considering sustainability aspects. The state social development ministry and the agricultural ministry make investments without consulting the environmental sector or [interinstitutional] participatory spaces.

In the case of the Chiapas state government, the only individual pushing the REDD+ agenda and a more territorial approach is the under-minister for forestry, but he is seen by some as politically isolated and the environmental ministry is not seen to be driving policy as it is in Yucatán. Some posts have been filled as a result of political favors and the occupants often know little of environmental issues.[31] As one NGO director in the Chiapas state capital commented:

> The state government doesn't really understand the forestry potential that Chiapas has. The whole environmental issue in Chiapas has become a media tool, a public face for the state, that is used to benefit some political parties and sell the state beyond its borders as an ecotourism destination.

The limited functionality of a number of participatory councils around forestry, climate change and the environment at a state level reflect this problem. Interviewees in Chiapas mentioned that these councils were seen as a "bureaucratic requirement" by state officials and were not backed up with budgets and training programs that might empower them and promote a broader participation in decision making. In contrast, many informants recognized the important role played by the state government in the establishment of oil palm plantations in the previous administration and some involvement in the current coffee rust epidemic affecting producers in Chiapas.

4.5 Municipal government

Although municipal governments have been gradually empowered over the last 30 years by progressive reforms to article 115 of the Constitution, taxation systems and the federal planning law, this level of government remains the 'weakest link' in the current governance structure around natural resources (see Delgado *et al.* 2006). Despite having important attributions in territorial planning, most of our interviewees considered that municipal governments lacked the capacities, knowledge and budget to successfully intervene in this area. For example, a member of a Regional Forestry Association in the Lacandon Forest considered this level of government to be "completely absent from forestry and environmental questions". One local NGO director in Chiapas considered that around half of municipal governments in the country were infiltrated by narco-traffickers, and corruption is seen as particularly problematic at this level.

Municipalities vary enormously in scale and budgets. The state of Yucatán, for example, has 106 municipalities. Some are barely 50 km^2, while the largest municipality, Tizimín (Y-2), is over 3,700 km^2. Some municipalities are closer to their respective state capital, permiting a more agile communication between federal and state institutions and the municipal level. In Yucatán, no municipality is more than 3 hours travel from the capital, whereas in Chiapas journey times to the state capital can take as much as 10 hours from some parts of the state.

31 For example, the current under-minister for climate change in Chiapas is a dentist by profession, much to the frustration of some of the NGOs trying to support the state government with REDD+ preparedness.

It is important to mention that in much of Mexico, particularly in the south of the country, many rural municipalities have a history of being ethnically divided (Lozano 2012). The rural areas were populated by indigenous *campesinos* and the municipal capitals by more *mestizo* populations. Every region has its history in this respect, but the incorporation of the rural population into municipal politics (and government) continues to be a challenge. These historical divisions can tell us something about current municipal politics, where there is a tendency for municipal governments to focus on urban centers and maintain an upward gaze, toward higher levels of government rather than a vision that looks to include rural populations. A senior CONABIO employee in Yucatán considered that there existed an "almost dysfunctional relationship between the municipalities and the *ejidos*. In Yucatán […] the municipal government offers almost no services to the *ejidos* and doesn't get involved in agricultural questions […] An example is the conflicts over trash and landfills between municipalities and *ejidos*." This is despite the fact that agrarian law stipulates the designation of a person in the *ejidos* whose job it is to liaise with municipal governments.[32]

The short, 3-year political cycle of municipal governments (with no immediate re-election permitted) was often mentioned by informants as a constant barrier to ensuring some degree of continuity in the application of plans and policies (state and federal governments have 6-year cycles in Mexico). Also, the nature of multi-party elections at the municipal level means that in practice, once in power, these administrations often only favor those that voted for them and financed their campaigns, with a tendency to exclude opposition parties and their supporters from the benefits of municipal budgets and projects, creating division and conflict. Other interviewees pointed to the negligible budgets assigned to agriculture and forestry at the municipal level (one ex-director of agriculture in the Chiapas municipality of Ocozocuautla called the municipal agricultural budget "a joke"), considering that municipal governments deal essentially with questions of local infrastructure and act as local agencies that channel pre-established federal programs to farmers in the municipalities. A *campesino* in the coastal municipality of Mapastepec (Ch-4) commented that it was "as if the municipal agriculture department didn't exist." Although the 2001 Sustainable Rural Development Law established a hierarchy of rural development councils at different government levels, including the municipal level, these participatory bodies have seldom provided the continuity beyond the three-year electoral cycles, and many interviewees explained how they had become dominated by party-political concerns. In the smaller municipalities we studied, these sustainable development councils no longer existed, reflecting weak local capacities and the difficulties of incorporating diversity into local decision-making processes, as well as a degree of skepticism and fatigue around participation on the part of 'civil society' actors. In the case of Maravilla Tenejapa (Ch-1), where they had recently reinstituted the Municipal Rural Development Council, expectations around the deliberative and decision-making potential of the council were so low that they decided that it would be 'fairer' to distribute the available funds by lottery (numbers in a hat) rather than use any other criteria to produce a better – more legitimate – outcome (Oswaldo Villalobos, pers. comm.).

Despite these problems, an exception appeared to be larger municipalities near or within PAs. These local governments – with greater human capital and larger budgets – have coordinated with federal environmental authorities in influencing land use in their respective territories. This was particularly the case in those municipalities that have taken a proactive role in fire management, such as Villaflores in Chiapas (Ch-3) or San Felipe in Yucatán (Y-2). The threat of wildfires in the dry season has led to improved vertical and horizontal governance integration that has undoubtedly led to a decrease in the frequency of these fires.

32 In Chiapas, this position is called 'municipal agent' while in Yucatán , two commissioners are named in the *ejido* – the *Comisario ejidal*, who is elected to deal with internal governance (land and forest issues) and the *Comisario municipal*, who is responsible for relations with the municipal government, which mostly involves health, social programs and infrastructure.

4.6 *Ejidos* and communities

As mentioned, in practice, it is often the *ejidos* and communities that decide on the use of forestlands, as the presence of state institutions can be negligible. A prominent forestry technician in Chiapas explained that government "has decentralized [forestry] functions directly to the *ejido*, skipping the state and municipal levels. For example, the decision to conserve the forest (or not) is now a decision that the *ejido* takes." An NGO director recognized that *ejidos* "deal with everything related to land, rights and access and the 'sale' or ceding of land rights", but considered the ability of *ejidos* to resolve conflicts to be limited, with low levels of transparency and accountability on the part of *ejido* authorities. Another NGO director recognized this complexity in the internal politics of *ejido* assemblies, with "all sorts of dynamics and interest groups that negotiate things based on future compensations and favors. This gets worse if the political parties become involved in these processes; nobody really governs for all."

The control that the social property sector now has over its forests is to some degree the result of political struggles in the 1970s and '80s and consequent changes in forestry laws. For much of the 20th century, Mexico's forests, although legally property of *ejidos* and communities, were often under forest concessions operated by private and later parastatal forestry companies, which paid the collective owners limited amounts for the right to extract timber. In the 1980s, policy support shifted to community based forest management and an important number of Community Forest Companies emerged, many of which prosper today, managing around 18 million ha of forests in different parts of the country (Cronkleton *et al.* 2011), although the sector is far from fulfilling its potential. A constant complaint is the limited sums that CONAFOR dedicates to this sector, which spends more money on 'passive' investments, such as PES. Since its foundation, CONAFOR's support for the community forestry sector has been inconsistent and partial, and it has only dedicated on average around 18% of its federal budget to community forestry, despite Mexico being a world leader in this area (Leticia Merino, pers. comm. 27 September 2016).

Despite neoliberal reforms, under current law, forests cannot be individually assigned to *ejido* or community members, and have to remain within common-use zones for their collective management. Only agricultural lands can be privatized, not forests, which can return to the nation if the *ejido* completely disappears (Art. 29 *Ley Agraria*).[33] This legal foundation has been key to the success of current community forestry enterprises, and more recently it has acquired new relevance in the context of PES schemes that currently only benefit collectively owned forest areas in *ejidos* and communities.

In many of our interviews with *ejido* members in the increasing emissions sites, there was a keen sense of abandonment by the government, after decades of state support for the agricultural sector. In Yucatán, there was an emergent pattern of *de facto* 'privatization' of *ejido* lands by outsiders and agricultural companies, both foreign and national, responding to cheap land prices, commercial opportunities and, in some cases, federal subsidies; this was particularly evident in Tekax (Y-5), for example.[34] This situation has eroded the social property sector's governance capacities in some cases as small-scale agriculture has become increasingly subject to the whims of global commodity markets.

In our interviews with key informants, the current and potential role of *ejidos* and communities in forestry management and particularly in REDD+ was an area of much debate and strong opinions, particularly among researchers and NGO workers. In Mexico, the issue of agrarian reform and the effectiveness (and legitimacy) of the *ejidos* and communities as producers of food and custodians of landscapes and natural resources is highly polemicized, and points of view often reflect ideological

33 In practice, many forests have been included in individual plots; this is another example of the contrast between *de jure* principles and *de facto* practice.

34 As this process is often extra-legal it is difficult to quantify and official figures do not take into account this *de facto* privatization.

positions rather than a consideration of the facts and viable alternatives. One of the arguments we put forward here is that social property institutions can be – under certain conditions – very effective managers of forests for common benefit, but within the REDD+ process there has been some ambivalence as to the precise role that will be played by these local governance entities. Nonetheless, a university researcher working on REDD+ measuring, reporting and verifying (MRV) in the Lacandon Forest (Chiapas) considered the issue of the *ejidos* and communal lands to be "key to REDD+ because the agrarian level is crucial for governance. In reality the municipal and state governments spend their time and energy trying to lobby for federal funds from different institutions."

Many interviewees hinted at what a sensitive or tricky issue the agrarian question had become, not only in the context of REDD+ implementation, but in the context of land-use planning in general (*ordenamientos territoriales*) and particularly in and around PAs. A NGO member of the national Technical Advisory Committee for REDD+ (*Comité Técnico Consultivo REDD+* - CTC-REDD+) explained:

> In the national CTC-REDD+, this question of the *ejido* sector has come up a lot in discussions but it hasn't really resonated with government institutions […] Nobody wants to touch the question of land and tenure and there's a lot of resistance. […] I have the impression that we're creating a time bomb. We have this idea that in Mexico the whole land issue is resolved, at least more than other countries, but there's still a lot of regions in the country with serious agrarian conflicts. They haven't really addressed the generational problem in the *ejidos*, they talk about the aging *ejidatario* population, but more in terms of its impact on productivity, not on governance.

Nonetheless, a regional expert on REDD+ felt that the *ejidos* "should take a lead role but given how the REDD+ process is developing in Mexico there is a danger that the *ejido* sector becomes lost within other jurisdictions and simply become 'operators' and not leaders in the process".

4.7 Obstacles to inter-sectoral and multilevel collaboration

> No, the agricultural sector doesn't attend our meetings; in that sense, we don't 'coordinate' with them – but look, even if we were to move forestry, environment, and agriculture into the same big-tent office, the fundamental tension between environmental protection, creating jobs, and producing food would not simply vanish! (Under-Minister for Forestry, Chiapas State Government)

As we have seen, there are many obstacles to vertical and horizontal collaboration, essentially related to the incommensurable nature of many development and environmental policies and programs. Despite the discursive importance put on improved governance and collaboration, 'business-as-usual' continues to dominate, at least outside of those selected regions considered to be worth conserving. Sectoral visions, that reflect differing ideas about development, continue to inform interventions in different rural areas and are reflected in cultural differences; every sector or institution has different 'ways of doing things' and the same territories are viewed from different positions and distinct priorities are established. As one federal environmental sector employee in Chiapas commented:

> CONANP is interested in the protected area, CONAFOR is interested in the forest, CONAGUA is interested in water. We all share the same space, and invest large sums of money, but we don't coordinate our efforts. Each institution sees what it wants to see.

A researcher in Chiapas expressed similar frustration: "There is no coordination among institutions. The law itself is sectoral. There is no follow-up work, and participatory [interinstitutional] committees are simply useless." In the municipality of Tekax (Y-5) in Yucatán, a manager of a private ranch that produces vegetables, soya, sorghum and maize, also pointed to the hermetic nature of different

government sectors, observing that the different federal agencies that operated in the region – SAGARPA, CONAGUA, CONAFOR – were "like islands" that do not talk to each other.

One explanation that went beyond the challenges of making different 'epistemic communities' work together was the persistent corruption present at different levels, which represented a significant barrier to inter-sectoral collaboration. As the director of a PA in Chiapas commented:

> Collaboration itself is seen as a threat because it opens up internal affairs to outside scrutiny. Here there is a tradition of the '*diezmo*', which means that institutions participating [in a government project] can take a percentage for themselves [often 10%] […] The institutions simply say that the expected amount didn't arrive, only *x* amount, and you have to accept it. This is the principal barrier to institutional coordination.

A further issue identified by key informants as a barrier to improved collaboration was the difficulty of engaging with other forms of working, with other bureaucracies. As a high-level employee at the Yucatán state's Rural Development Ministry (SEDER) commented:

> I coordinate my work with SAGARPA, but there is a lack of effectiveness in this coordination. Normative requirements and bureaucratic procedures make project implementation unnecessarily complicated; there's just too much paperwork! […] If it ends up being a burden on your activities, then something's wrong: a system is established to facilitate, not complicate things. I need to hire an army of personnel just to review formats and paperwork.

The director of a PA in Chiapas explained that it had been difficult to collaborate with other institutions because when you got down to the details of working together, two issues always appear. First, the other institution has different (and often incompatible) operational rules and, second, the institutional rhythms and cycles do not coincide, making it difficult to come together around a particular issue or project.

In our research, the clearest example of contradictions between distinct visions and agendas of development for the same territory came from the Cono Sur region in Yucatán, which included two of our case studies. The first case study was the Puuc Biocultural State Reserve (Y-3), a 136,000 ha protected area decreed in 2011 by the Yucatán state government. This initiative reflects a new vision for government PAs by acknowledging the biocultural character of the region, which incorporates many classic Maya archeological sites as well as important areas of deciduous tropical forest, two-thirds of which is owned by nine Maya indigenous *ejidos*. The decree that created the reserve recognizes the need to distribute fairly and equally the benefits of the environmental services the area provides among the population and identifies improved (local) governance as the means to such an outcome (Gobierno del Estado de Yucatán 2011). The human population resident within the reserve is minimal (≤ 1000) but more than 20,000 people live on the reserves' limits and depend to some degree on the services that the PA provides (Libert Amico *et al.* in press). As we shall see in more detail in the following section, the Puuc Biocultural State Reserve and surrounding areas have received support and funds from the government environmental authorities and various NGOs and international donors have concentrated efforts in this region, piloting a number of REDD+ early actions and supporting governance innovations.

In contrast to this scenario, to the southeast of this new reserve is the large municipality of Tekax (Y- 5), where land-use trajectories reflect a different logic. The Maya farmers have long recognized the fertility of the soils in this region for *milpa* agriculture, but until relatively recently road access has been restricted, putting a limit on commercial agriculture. Currently, however, several factors have conspired to produce a rapid expansion of commercial agriculture – soya, sorghum and vegetables – often at the cost of forest cover. A structural factor has been the *de facto* privatization of *ejido* land in the region and its possible 'sale' to outside investors. Moreover, land has been extremely

cheap, at least until very recently. Some of the new ranches have up to 3000 ha of land, much of which has agricultural potential if irrigation is used. Even some *ejidatarios* have accumulated up to 800 ha. Interviews with ranch managers confirmed that the tendency was to deforest more areas for agriculture; "slowly the forest will disappear" was one comment. On top of this, there is rising demand for soya, partly a result of huge increases in the intensive production of pigs and chickens in the region. To satisfy this demand, the production of soya has been promoted by the federal and state governments, as well as by the private sector. SAGARPA currently offers subsidies for every ton of soya harvested (c. 100 USD/ton) and the state government has built over 50 km of new roads just in the municipality of Tekax to provide access to harvests, while providing seeds and agrochemicals.[35] The private sector also offers credit, seed packages and technical assistance.

These two radically different visions for the territory have come to a head in an emblematic lawsuit that has caused a 'constitutional controversy' in Mexico and demonstrates the internal contradictions between different government sectors. In 2012, permission was given to sow genetically modified (GM) soya in the Cono Sur. This came to seriously affect honey production in the region – Yucatán is the top honey-producing state in Mexico – as traces of genetically modified soya pollen contaminated the honey, most of which is exported to markets in Europe, where such GM traces are not permitted. At the end of 2015, honey exporters managed to put a stop to the sowing of GM soya by seeking constitutional protection (*amparo*) from the Supreme Court. The case is to be resolved through a consultation process with the Mayan people of the region. This conflict has revealed divisions between levels of government as the Yucatán state government, through its environmental ministry, has now managed to declare the state to be a 'GM-free zone' through decree 418/2016[36] (although this is technically beyond the state's jurisdiction), while the federal ministry of economy seeks to reactivate the permits for GM soya (see Gómez González 2016).

4.8 Conclusions

In an analysis of our interview database, it was clear that the federal level, usually in articulation with the *ejido* level, was the governance level most associated with LUC and deforestation and forest degradation in the states studied. Despite official discourses favoring decentralization and improved governance, most interviewees were unconvinced that many powers around natural resource use had actually been devolved to state or municipal governments in practice. Similarly, inter-sectoral collaboration was perceived as a continuing challenge for many reasons, including hermetic work cultures, corruption and irreconcilable development agendas. The example of the conflict around GM soya in Yucatán reveals how different sectors and levels within the government apparatus can take radically different positions on what is considered to be appropriate land use in a particular region and use different legal instruments to try to ensure that their vision for the territory prevails.

As discussed, subsidy programs operated by the agricultural ministry, SAGARPA, were considered by many of our interviewees as a permanent incentive for LUC, although other forces at work were clearly as important in determining LUC, such as demographic processes, volatile prices for different rural products and even climate change. Agricultural subsidies appeared to swing the situation in favor of expanding agricultural land at the expense of the forest in the Cono Sur region of Yucatán, specifically the municipality of Tekax (Y-5), where subsidies effectively made soya production 10 times more attractive per hectare – at least in monetary terms – than receiving PES from CONAFOR's programs.

35 "Gobierno de Yucatan impulsa la producción de granos en el Sur del estado" *Mi punto de Vista*, 14/07/2016. http://www.mipuntodevista.com.mx/gobierno-de-yucatan-impulsa-la-produccion-de-granos-en-el-sur-del-estado/

36 See *Diario Oficial del Gobierno del Estado de Yucatan*, 26 October 2016, Decreto 418/2016, "Through which the state of Yucatan is declared a zone free of genetically modified organisms".

Nonetheless, the federal government was also associated with forest conservation, partly because of the legacy of federal PAs, but also because of the importance that the CONAFOR-PES program has acquired in certain regions. As we have seen, these PES programs have had other effects beyond the permanence of certain forest areas, on the one hand, sometimes empowering *ejido* authorities as local governance institutions but, as we shall see in more detail in Chapter 6, PES are also in danger of being considered yet another subsidy.

In contrast to agricultural policy, which has historically been controlled from the center of the country and dominated by a powerful and well-funded ministry, environmental policy in Mexico has always been characterized by an important degree of civil society involvement. As we shall see in the following chapter, PAs have served as laboratories for LED initiatives, particularly in Chiapas. The role of these reserves in the provision of important environmental services, the protection of endangered species and in the maintenance of biological connectivity has attracted the interest and concern of a wide range actors, forging important collaborations and coalitions. But even as PAs have expanded and PES have been increasingly deployed over the past decade, agricultural intensification has continued to accelerate. The next chapter seeks to examine how these two competing visions are negotiated through changing coalitions in Mexico, and sheds light on where they are likely to land in the future.

5 Initiatives and coalitions for change

This chapter looks at the opportunities for a transition from a 'business-as-usual' model to one in which different initiatives and coalitions are able to alter current development trajectories. Initiatives and coalitions for change exist and have sought to stimulate changes in the way (sectoral) policies are delivered, but these collaborations have often proven to be fragile, funding dependent and 'without roots' (*sin base*). Generally, *campesino* organizations and *ejido* unions have limited political leverage in this area, although there are some signs of reorganization around forest stewardship instead of traditional agricultural production in some cases in Chiapas and Yucatán. We argue that this has led to a situation where urban-based, environmental NGOs have become influential in the LED policy arena, particularly around REDD+, creating a situation in which local and national NGOs have become vehicles for the implementation of international climate change agendas, but with limited obligations to build informed consent or open themselves up to more scrutiny (Bendell 2006).

This chapter looks at planned and unplanned initiatives for change and loosely groups them according to their origin in (i) government, (ii) civil society organizations (CSOs), (iii) (non-carbon) markets, or (iv) crises or extreme events. This last type includes what might also be termed 'spontaneous' or 'organic' coalitions that appear in a crisis in which regional livelihoods have been threatened by forest fires, extreme weather events or crop disease. Although in practice these four types blur through the emergence of different coalitions around particular goals, the distinction allows us to appreciate some of the differences that can determine eventual levels of commitment, legitimacy and success, and hence longevity. A further dimension is the frequent presence of international funding (and hence agendas) in all of these initiatives for change and risks of dependency on these resources.

5.1 Government initiatives

Impetus for change in the ways in which rural development and forestry policy are delivered in Mexico has come from within the government itself as well as from other actors. Efforts to improve inter-sectoral collaboration and incorporate broader participation are evident in recent legislation, particularly in the Sustainable Rural Development Law of 2001 and the Climate Change Law of 2012. This first law created new planning spaces at different levels for collaborations between sectors and local populations, such as the Inter-Ministerial Commission for Sustainable Rural Development at the federal level and state, regional and municipal sustainable rural development councils. The second law created the federal Inter-Ministerial Commission for Climate Change (*Comisión Intersecretarial para el Cambio Climático*, CICC), and its working group on REDD+, along with analogous state-level spaces. Unsurprisingly, the current National Development Plan (2013–2018) also promotes "participation and the sustainable use of natural resources and environmental services [and an] improved environmental performance of the production sector" (Carrillo and Velasco 2016: 3). The National REDD+ Strategy document expresses similar aspirations regarding inter-sectoral collaborations, improved territorial governance and wider participation (CONAFOR 2017). Indeed, discourses regarding improved governance are common among higher-level government staff, and government institutions are assigned budget lines to improve coordination and collaboration with other government sectors.

But new laws can be relatively easy to pass, especially when they call for improved sustainability, governance and efficiency, and MoUs between different government sectors are also easy to sign (and can generate political capital). Translating such aspirations into actions in specific territories remains challenging. An employee at SAGARPA in Chiapas observed that it was easiest to build intergovernmental alliances around particular programs and funding opportunities: "To be honest it's

easier to promote coordination around particular programs in a selected territory, at least to start with, and seek to build from there." Nonetheless, many observed that traditional sectoral programs continue to run alongside more innovative projects. Federal government workers in the different states are not always 'on board' with regards to initiatives that challenge traditional work paradigms. In any case, most government workers in the agricultural and environmental sectors are increasingly tied to their desks, as they become program and project 'bureaucrats' with very little presence in the field.

REDD+ has undoubtedly offered a point of contact for diverse actors with overlapping agendas, but it has also become a policy area within which these different actors – federal government, NGOs, forest communities – attempt to push through their vision for REDD+ with differing emphases on carbon, safeguards, forest management, etc. REDD+ has also been slow to materialize, lending an uncertainty to the process and to the alliances around its implementation. Since most REDD+ initiatives and collaboration around LED alternatives are taking place around federal and state protected areas (PAs), we first look at these 'first-generation' efforts to control LUC.

5.1.1 Collaboration around protected areas

Over the last two decades, PAs have acted as magnets for further interventions in these territories and their immediate surroundings because of their importance as biodiversity hotspots and providers of ecosystem services. Institutionally, PA directorates have sometimes functioned as conveners of other sectors, in their desire to coordinate different sectoral actions in or near to the PA. This role has been fulfilled with different degrees of success, depending on personalities, regional characteristics and political 'moments'. The most successful examples in this sense were those PAs along the Chiapas Sierra Madre, whose directorates have participated, according to the regional director of the CONANP, "in a process characterized by consensus building with local actors and large regional organizations".

The CONANP has managed to promote the establishment of the 'Sierra Madre Alliance' – a coalition of actors from different sectors interested in the conservation and the promotion of LED initiatives in this region of Chiapas. This alliance is formed by national and international NGOs, universities and research institutes, private companies and individual specialists, who work voluntarily in different work groups to ensure the conservation of the region, and it was cited by a number of key informants as an example of a voluntary and horizontal collaboration around a particular territory that seeks to influence territorial agendas and governance arrangements. Nonetheless, the alliance's success in restricting or detaining mining activity in the Sierra Madre – considered by the alliance to be the principal threat to the region's ecological integrity – has been limited to date, despite regional discontent and sporadic protest (Tetreault 2015). Increasingly, many mining concessions coincide with PAs, and the fact that there is legal, open-cast mining within the El Triunfo Biosphere Reserve is either one of the most explicit expressions of the lack of inter-sectoral collaboration, or it simply signals the impotence of the federal environmental sector in negotiations at higher levels of government and its inability to defend its mandate within PAs. One interviewee considered that a weakness of the Sierra Madre Alliance was precisely that it was led by the CONANP, a federal institution that only has jurisdiction within the PAs and thus a limited capacity to intervene in the region in its entirety.

The director of the Selva El Ocote Biosphere Reserve in Chiapas was clear that without outside support and financing, it was impossible to fulfil the reserve's mission in the region. This PA had been a key player in the construction of the Selva Zoque initiative that sought to create a broad platform, including three state governments, from which to manage the tropical semi-deciduous forest that characterizes Chiapas' western border with the neighboring states of Oaxaca and Veracruz. But according to the director of the reserve, this initiative could not overcome historical conflicts over state borders and the collaboration soon stalled. Given the nature of this underlying conflict, the director of the reserve considered that it was necessary to call upon higher levels of government, but such support was not forthcoming. This reserve continued to try to build alliances, subsequently limiting itself to NGOs working within the borders of the PA. Hence, the PA signed a 'goodwill' document with five

local NGOs to favor and enhance collaboration around sustainable agriculture, forest restoration, agroforestry, tourism and environmental services. The alliance worked for a couple of years, but interviewees reported that there had developed a degree of professional 'envy' among the NGOs who were not always prepared to share information, documents and skills.

With regards to collaborations with the inhabitants of these PAs, grassroots organizations and municipalities, experiences have been mixed. Although small conflicts and day-to-day frictions are common, inhabitants were generally quietly resigned to the restrictions placed on land use by PA decrees and management plans, which they considered to be an imposition, but one that was 'here to stay'. Many people had evolved a pragmatic approach aimed at obtaining 'compensation' through accessing different government funds or NGO projects. But including the representatives of the population in decision-making processes around PA management has been challenging. In Mexico, PAs do not generally involve land expropriation and thus do not alter existing tenure arrangements. However, for those who live in settlements within PAs that have no titles to their properties (despite occupying them prior to the creation of the PA), it can be very difficult to be legally recognized after the PA decree. Despite increasing international attention on tenure issues, particularly in relation to REDD+, at least in the case of Chiapas, the relevant authorities have shown a deep reluctance to address these issues within PAs, perpetuating the exclusion of these settlements from most government programs.[37]

In conclusion, PAs have served as important sites for LED experiments, but the CONANP struggles to fulfill its mandates in PAs because of insufficient budgets, personnel and attributions. External funding has strengthened territorial actions in and around PAs, but it has not been a substitute for stonger environmental institutions.

5.1.2 CONAFOR Special Programs in REDD+ Early Action Areas

In 2010, under pressure from certain influential conservationists and with funding from the World Bank's Forest and Climate Change Project, CONAFOR introduced what were originally known simply as 'Special Programs', which were attempts to render national forestry policy more flexible and to tailor interventions to regional realities. These programs were thus designed to ensure holistic actions, a territorial approach (based on watersheds and municipalities) and the alignment of diverse government policies, while also building capacities and piloting innovations in agroforestry (Deschamps *et al.* 2015). In the end, only three regions in the country were selected for these Special Programs: the coastal watersheds of Jalisco, the Lacandon Forest in Chiapas and a large part of the Yucatán peninsula (made up of the three states of Campeche, Quintana Roo and Yucatán). In 2014, these programs were redesignated 'Special Programs in REDD+ Early Action Areas', without, incidentally, the knowledge of most of these areas' inhabitants; they were subsequently officially closed at the end of 2015.

Despite offering, in theory, funding for a wide selection of activities from timber extraction and fire management to innovative farming systems, in the end the projects financed by the Special Programs were conservationist in character. Of the total investment between 2010 and 2014, 68% of the funds were dedicated to PES, only 7% to community forestry and 4% to innovative farming systems (Deschamps *et al.* 2015: 22). This conservationist turn was particularly evident in the region that received by far the most investment over this 5-year period, the Lacandon Forest in Chiapas, where forest owners received double the amount of PES per hectare compared to other regions, but virtually no support for community forestry or farming innovation (Deschamps *et al.* 2015: 24).

37 In some of the biosphere reserves in Chiapas, it has been estimated that between 5 and 10% of land is considered to be held 'irregularly' (without land titles). Generally, the areas being occupied correspond to 'national lands' and in some cases were settled as long ago as the 1930s (Trench 2017).

A senior official at the environmental ministry in Yucatán believed that the CONAFOR Special Programs had not attacked the fundamental causes of deforestation and forest degradation; he considered that the forestry focus of these REDD+ early actions reflected the fact that CONAFOR has not been able to think "beyond the forest", where the genuine challenges to REDD+ implementation lie. The director of *La Red Mexicana de Organizaciones Campesinas Forestales* (Red MOCAF), a network of *campesino* forestry organizations, considered that, on balance, the Special Programs differed little from conventional CONAFOR programs in the ways they were implemented and the populations that were targeted. Deschamps *et al.* (2015) shared these conclusions, finding that despite achieving a dip in deforestation and forest degradation and having enormous potential, the Special Programs had not managed to significantly change traditional work schemes or sectoral visions. They also detected a lack of interest in the Special Programs on the part of regional CONAFOR staff and insufficient political will among other government institutions to push the strategy through and initiate new governance structures (see Box 2).

Box 2. The Lacandon Forest Special Program

The origins of inter-sectoral collaboration in the Lacandon Forest Special Program (*Programa Especial para la Conservación, Restauración y Aprovechamiento Sustentable de la Selva Lacandona*, PESL) lie largely in lobbying actions carried out by CONABIO and the NGO *Natura y Ecosistemas Mexicanos* from 2008 onwards. The first fruits of these efforts were reflected in an MoU signed between SAGARPA and CONABIO, which transferred SAGARPA funds to CONABIO to finance farming reconversion in the region through the program "*Desarrollo Rural Sustentable en Corredores Biológicos de Chiapas*".

A second achievement was the alliance forged between CONABIO and CONAFOR in 2010 for the development and implementation of the PESL. The official objectives of this program were to reduce emissions in the region by financing conservation and forestry management activities through promoting new forms of multi-level governance and multi-sectoral participatory planning. CONABIO functioned initially as a 'Technical Agent' (*agente técnico*), working alongside an Operative Group and a Technical Council. The Operative Group was composed of federal institutions and the state environment ministry, and determined the distribution of CONAFOR funds, while the Technical Council, which gradually came to have a wider representation, validated these decisions. On the ground, the technical assistance was provided by forest technicians, who applied for funds in the name of the *ejidos*. A new planning instrument, inspired by the *plan vivo* methodology adopted by the NGO Ambio, was also piloted in the region. This instrument eventually became known as P-PREDIAL (*Programa Predial de Desarrollo Integral de Mediano Plazo*) and sought to plan land use at a plot level over periods of 5 years, taking into account different activities and sectoral programs.

As the CONABIO regional director in Chiapas told us: "Our job is to build alliances – with rules." Nonetheless, while he recognized that the environmental sectors at a state and federal level had worked together effectively, it had not been so easy with other sectors of the state government or with municipalities. Other interviewees commented on the difficulties of inter-institutional coordination in practice in the context of the Lacandon Forest Special Program. On the one hand, participation was limited to approving projects and funds in the Operative Group and Technical Council, and on the other, P-PREDIAL was operated by forestry technicians who were not obliged in the application of this instrument to consider other sectors and programs (nor did they receive training to adopt a broader view of land-use planning). At the other end of the scale, the program did not develop ways to oblige different sectors to channel funds through this new planning instrument. In short, multi-sectoral planning exercises did not ensure that the interventions on the ground were multi-sectoral (Libert Amico *et al*. in press). Some informants considered that the PESL was another example of imposition from the center on the periphery with little consideration of regional particularities. This was backed up by Deschamps *et al.* (2015), who concluded that even the Chiapas CONAFOR offices had very little opportunity to make recommendations or observations regarding the PESL, as the program's guidelines and budget distribution were decided in CONAFOR central offices.

A further issue that emerged in interviews was doubts over the criteria used for defining the REDD+ early action areas and why certain areas were selected over others. In the case of Chiapas, some NGOs considered that the choice of the Lacandon Forest for a special program and subsequently REDD+ early actions reflected the influence of certain powerful individuals in the conservation world. According to critics of the decision, it would have been better to include more threatened regions and incorporate a larger area. Some NGOs even went to Mexico City to protest against the choice, but to no avail. In the case of Yucatán, even the minister for the environment recognized that the largely deforested and degraded areas of eastern Yucatán (see Tizimín case, Y-2) were only included in the REDD+ early actions area because this region is known to be a bastion for the political party (*Partido de Acción Nacional*, PAN) that was in power during the last federal administration (2006–2012). This was backed up by an interviewee who was resident in the region who mentioned that there were 'government officials' in the area who had managed to incorporate their properties in the CONAFOR-PES scheme, in one case receiving payments for 400 ha of forest.

5.1.3 Mexico's National REDD+ Strategy

As mentioned in the Introduction, Mexico was one of the first countries to appropriate REDD+ and to adopt it in its national climate change strategy and policy. In 2009, the CICC was charged with developing a national strategy document and in 2010 the government created the national Technical Advisory Committee for REDD+ (CTC-REDD+) and presented a 'National Vision for REDD+' document in the sixteenth UNFCCC Conference of the Parties (COP16) held in Cancun. The following year, REDD+ working groups were created and attached to existing participatory councils in the rural development and forestry sectors. With elections in 2012 and a change of government (and ruling party), the REDD+ process stalled. The institution charged with REDD+ implementation, CONAFOR, suffered internal changes in the first 18 months of the new administration, and REDD+ was not prioritized. When the dust began to settle in the second half of 2014 (with a new team in place at CONAFOR), the fourth version of the National REDD+ Strategy document was placed under national consultation. The final version of the document was approved by the CICC in mid-2017 and was published in August of the same year (CONAFOR 2017). As in all REDD+ countries, the mechanism is still in the pilot phase in Mexico; current expectations are that REDD+ will be in full operation soon after 2020.

It is important to emphasize that the National REDD+ Strategy policy document, which took four years to develop and was under consultation for more than two years, is largely the product of the collaboration between the CONAFOR and different sectors of civil society in Mexico, who worked on the document through their participation in CONAFOR's REDD+ Working Group (part of CONAF) and the national CTC-REDD+. The strategy presents a holistic analysis of the problems of deforestation and forest degradation in the country and acknowledges that the solution must go beyond the forestry sector. It explicitly promotes "sustainable rural development through integrated territorial management" (CONAFOR 2017) and calls for different government sectors and levels to collaborate with CSOs to develop initiatives that reduce emissions in rural areas, promoting a convergence between national development and environmental agendas. The National REDD+ Strategy is considered to be a key element within a broader National Climate Change Strategy, and all federal ministries that have 'territorial influence' are considered to have responsibilities for its implementation.[38]

To consolidate this strategy on the ground and find ways of financing and promoting a new low emissions rural development with a territorial focus, new governance organisms are proposed, known as Public Territorial Development Agencies (*Agentes Públicos de Desarrollo Territorial*, APDT), which will operate at the level between state governments and municipalities (CONAFOR 2015) (see

38 The strategy has seven components: (i) policy and legal framework, (ii) finance schemes, (iii) institutional arrangements and capacity building, (iv) reference levels, (v) monitoring, reporting and verification, (vi) social and environmental safeguards, (vii) communication, participation and transparency (CONAFOR 2017).

Box 3. Public Territorial Development Agencies

Since 2013, CONAFOR has promoted Public Territorial Development Agencies (APDTs) as the main governance innovation for the implementation of REDD+ at a landscape (or territorial) scale, by establishing a layer of governance between the state and municipal levels which would seek to harmonize rural development interventions to achieve LED outcomes. The first formal mention of APDTs is in the ER-PIN in 2013, where APDTs are defined as: "public interest agencies that work at the regional or landscape level, assist with regional development planning, promote actions for the sustainable management of natural resources, have their own technical staff and should have financial management capacities" (CONAFOR 2013: 19).

A later CONAFOR policy document defines APDTs with more precision, indicating that, among other things, these agencies will (i) go beyond the limits of the municipality and forestry communities; (ii) ensure continuity in REDD+ implementation during political transitions; (iii) solicit alternative sources of funding; (iv) promote inter-government collaborations and improve policy delivery at a regional and local level; (v) generate MoUs with research centers and NGOs to develop solutions to regional forestry management problems; and (vi) support the creation of local institutions aimed at a more participatory, transparent and democratic regional rural development (CONAFOR 2015: 30).

Apart from the Inter-Municipal Boards (Juntas Intermunicipales) present in three of the REDD+ states, only CONABIO, or rather its biological corridor program, has operated as an APDT (in the Lacandon Forest). Nonetheless, CONABIO was not designed for this territorial development role and has expressed its reluctance to take on this responsibility in regions outside the Lacandon Forest. Non-governmental actors and alliances feel aggrieved as they are excluded from consideration by not qualifying as 'public bodies'. According to a recent legal review carried out by Pronatura-Sur (Alianza M-REDD+ 2016), CONABIO does not fulfill all the requirements of an APDT in any case. Ironically, it is CONAFOR itself that is identified as the institution that most fulfils the criteria for an APDT, closely followed by the National Ecology and Climate Change Institute (Instituto Nacional de Ecología y Cambio Climático, INECC), the Inter-Municipal Boards and state environmental ministries (Alianza M-REDD+ 2016). In any case, the criteria which no agency fulfils is the authority to oblige the harmonization of different sectors' policies and programs; only the federal executive power have this ability.

In Chiapas, where Inter-Municipal Boards have not been promoted as APDTs, there is considerable confusion as to how exactly these agencies will be created and by whom. There are also continuing tensions between the federal and state levels regarding the precise definition of these APDTs, with CONAFOR circumscribing their functions to forest management and the state environmental ministry pushing for a more territorial development remit.

Box 3). To date, these agencies have materialized in one of two forms. The first is the model of the Inter-Municipal Board, a governance innovation pioneered in the coastal watersheds of the state of Jalisco in the west of Mexico to bring municipal governments together around watershed management. This is the model that has been reproduced in the south of Yucatán and has also been established in Quintana Roo. The second is the almost 'accidental' role that CONABIO has taken on as an APDT in the Lacandon Forest, which we will look at in further detail below. Staff at the CCMSS considered that there had been "barriers to the consolidation of the APDTs, often because they have not been able to sign MoUs with other actors in the region, [and] the state CONAFOR delegations have not always understood the character of the Special Programs and how they differ from traditional interventions".

But a fundamental problem identified by some interviewees was that CONAFOR does not have sufficient institutional weight to push through such an ambitious program and call upon different sectors to align their actions to new low emissions targets in rural areas. CONAFOR is a decentralized body of the SEMARNAT and does not have the level of a ministry (like SAGARPA, for example). This lack of 'rank' was perceived as having negatively affected CONAFOR's ability to promote

REDD+ and other LED options across sectors. Certainly, throughout the REDD+ process, contact and collaboration between the forestry and agricultural sectors have been challenging, and the majority of the SAGARPA staff that we spoke to were unaware of the National REDD+ Strategy. Of course, it is possible that even if SEMARNAT advanced the National REDD+ Strategy, it might not find purchase in other ministries. But the fact remains that CONAFOR continues to be a sectoral institution, staffed largely by forestry engineers who continue to work in a traditional, bureaucratic and centralized fashion, but are expected to deliver a new paradigm in rural development, eventually throughout the entire country. Many informants considered that this remit was beyond CONAFOR's capacities and really corresponded to the respective planning ministries at federal and state levels.

5.1.4 Subnational REDD+ in Chiapas and Yucatán

The experiences of REDD+ preparation in Chiapas and Yucatán offer some interesting similarities and contrasts. The COP16 climate talks held in Cancun, in southern Mexico, in 2010, offered opportunities to both state governments to project their REDD+ ambitions. Chiapas was initially swifter to embrace REDD+, partly because the state governor at the time saw that political capital could be made by associating his administration with REDD+ (and other international initiatives such as the Millennium Development Goals), but also because a number of NGOs in the state were already working on low emissions initiatives and voluntary carbon markets. In the case of Yucatán, motivations were distinct. A low-lying territory particularly vulnerable to climate change and with important forest cover, Yucatán state quickly entered into collaborations with the two other states that make up the larger Yucatán peninsula in order to develop policies to mitigate climate change.

In both states, we found optimism and pessimism regarding the viability of REDD+. Almost all nongovernmental informants considered REDD+ to be a good idea, but the interviews carried out in 2015 also revealed that the initial enthusiasm was beginning to ebb, being replaced by a creeping skepticism regarding the future of REDD+. This was in part related to the realization that REDD+ was losing political support and also that the trademark had become tainted (in the case of Chiapas). Part of the problem identified by interviewees was that REDD+ was becoming everyone's panacea, and the ever-expanding remit of REDD+ was becoming confusing and less realistic. As one NGO worker in Yucatán commented: "Debates on REDD+ are already burnt out. People have been asking me for more and more interviews on REDD+; that is a sign that the program isn't working and that there are no results."

In Chiapas, REDD+ had both auspicious and inauspicious beginnings. On the one hand, the promise of REDD+ generated unprecedented levels of collaboration among certain actors to prepare Chiapas for REDD+ and put the state on the international REDD+ map. In 2010, Chiapas signed a Memorandum of Understanding (MoU) on climate change action with the state governments of California (USA) and Acre (Brazil) – to link jurisdictional REDD+ programs with California's cap-and-trade program, thus bypassing the UNFCCC gridlock – and joined the Governors' Climate and Forests Task Force (GCF). In 2011, under the auspices of the Chiapas state government, an Action Plan for Climate Change in Chiapas (*Programa de Acción de Cambio Climático del Estado de Chiapas*, PACCCH) was produced with the participation of international NGOs, universities and federal government institutions and was put under limited consultation (nine regional workshops in 2012). The fact that 76% of the emissions in the state are related to land-use change, deforestation, degradation, fire, agriculture and cattle (SEMAHN *et al.* 2011) furthered the case for adopting and promoting the REDD+ mechanism. Indeed, many NGO staff consider the 2011–2012 period to have been a 'golden moment' for collaboration and the exchange of information and indeed an important quantity of technical data was generated in a short period of time.

At the same time, however, the 2006–2012 Chiapas state governor, Juan Sabines Guerrero, unilaterally initiated a 'REDD+' program in the Lacandon Forest. This was announced in the context of the 2010 Climate Talks in Cancun (UNFCCC COP16), although the proposal was not backed up by any

Box 4. Innovating governance in the Puuc region (Yucatán)

The Puuc Biocultural State Reserve is a 136,000 ha protected area that includes parts of five municipalities and was created in order to conserve the remaining forest in a region of natural and archaeological importance that was being increasingly encroached upon by commercial agriculture. Its decree emphasizes the biocultural dimension and stresses the need to guarantee that the benefits generated by the reserve's environmental services should be shared broadly and fairly to improve livelihoods, while promoting collaborative learning and strengthening regional governance. The decree establishes Users' Committees (*Comités de Usuarios*) that represent land owners and natural resource users in different watershed areas of the reserve as the foundation for new governance arrangements (Gobierno del Estado de Yucatán 2011).

SEDUMA, in collaboration with different federal actors (CONABIO, CONAFOR), NGOs (Mexico REDD+ Alliance) and international funders (USAID, LAIF, GIZ), has begun to construct a novel system of multilevel governance that hopes to manage and protect the reserve and different watersheds, whilst promoting LED in a region that goes considerably beyond the reserve and now includes six municipalities in their entirety. The principal innovation has been the creation of the Puuc Inter-Municipal Board (*Junta Intermunicipal del Puuc*, JIBIOPUUC), by state government legal decree in October 2014 (Gobierno del Estado de Yucatan 2014). This was followed by the creation of a Citizen's Council in 2015, which includes 27 representatives from different sectors, such the users' committees, tourist operators, a regional forestry association, NGOs, academics and artisan groups, etc. (see Rabasa 2015). This council serves to advise the Administrative Council, made up of municipal presidents and state and federal environmental institutions, and the Direction of the JIBIOPUUC.

Despite the considerable resources dedicated to preparing the ground for these novel governance interactions, the results so far have been limited. This is principally due to a lack of funding and staff; 2016 turned out to be a year of limbo, as a number of consultancies came to an end and no further funds were made available for the JIBIOPUCC to carry out its new mandate for the region. There is also a concern that the Citizens' Council has not yet successfully connected with the Users' Committees, and hence the *ejidos* (which occupy two-thirds of the reserve's area). To date only two landowners have direct participation in the Citizen's Council. The first is the *ejido* of San Agustin and the second a private ecological reserve (*Kaxil Kiuic*) – neither case particularly representative of the regional reality. A further challenge will be to develop a management plan for the Puuc Biocultural State Reserve while attending to the population and territory that make up the six municipalities. The population that permanently inhabits the reserve is fewer than 1000 individuals, but all the municipalities together have a population of around 140,000 people. It is an area with a diversity of productive activities from irrigated fruit plantations, especially citrus, to the soya and sorghum growers in the municipality of Tekax (Ch-5).

It is still too early to judge the success of the JIBIOPUUC. Funding has been limited to date and it has been difficult to pay salaries to ensure permanent staff. Local participation in the JIBIOPUUC has also been a challenge. As an APDT, the JIBIOPUUC should take a leading role in coordinating actions around land use in the six member municipalities. It is hoped that when the funds begin to flow via the Investment Plan for the region (part of the FCPF-funded IRE), it will breathe life into this multilevel governance space. In December 2017, the JIBIOPUUC received a special mention in the International Council for Local Environmental Initiatives' annual conference, held in Morelos, Mexico.

technical study, MRV mechanism or linked to any potential carbon market. This 'REDD+' program simply paid MXN 2000 monthly[39] to the 1700 members of the Lacandon Community[40] with no specified conditions, except to 'protect' the forest. At the time, these actions were perceived with suspicion from some quarters of civil society in Mexico and Chiapas, and even internationally. At another level, it was perceived as a way to enhance Chiapas' environmental credentials in national and international arenas while placing Chiapas' forest at risk of dispossession. These initiatives served to discredit REDD+ in the eyes of many in Chiapas, and as Governor Sabines' term of office came to an

39 USD 105 (7 November 2017).

40 This is one of the largest agrarian (and indigenous) communities in the country with an territory of around 450,000 ha.

end, it was used against him as an example of old school clientelism dressed up as environmentalism. For a period of time, a number of more radical NGOs in the state campaigned against REDD+ and forged alliances with other anti-REDD+ movements in the continent. The issue faded away with the cancellation of the state government's REDD+ program in the first months of the new governor's administration in 2013. Nonetheless, REDD+ continues to have an image problem in Chiapas, reflected by some actors' reluctance to use the term REDD+ when working with communities, preferring the terms 'low emissions development' or even 'carbon management'.

But for some environmental NGOs in Chiapas, REDD+ was perceived as a vindication of past actions and as an opportunity to change the course of rural development. It is worth quoting at length the director of an NGO in Chiapas with experience in the voluntary carbon market.

> REDD+ was originally perceived here in Chiapas as a mechanism with a lot of potential for the forestry sector – a watershed moment. A lot of people thought that their ambitions could be realized in the context of REDD+. But both national and internationally the idea started to lose definition, and it became clear that there was very little money available and the enthusiasm evaporated. What I would rescue from REDD+ is to see it as a great opportunity to improve various things: questions of governance, benefit distribution, tenure problems, to make visible the poorest sectors of the population. REDD+ has shone a light on these problems and in some way made the government face up to them. It has opened spaces for dialogue and exchanges, and has forced the government to participate. This is perhaps the best aspect of the process, not the money – REDD+ is going to bring us 5 pesos! REDD+ has created a critical mass and we've learned a lot.

In the state of Yucatán, REDD+ did not appear to have been controversial in the way it had been in Chiapas. According to the regional coordinator of the Mexico REDD+ Alliance in Yucatán, this has been because "the REDD+ Regional Strategy […] is based on good practices, with no negative impacts on land tenure, forest management or food sovereignty. The proposal is to work with the landscape, not against it" (see Box 4). Others mentioned the important leadership given to the REDD+ process by the state environmental ministry (SEDUMA).

The other factor that has differentiated the experience in Yucatán has been the important collaboration with the other two states in the peninsula in the design and potential financing of REDD+ in the region. The Yucatán environment minister stressed this, pointing to the creation of an Inter-state Climate Change Commission (*Comisión Regional de Cambio Climático de la Península de Yucatán*, CRCCPY) to implement the climate change coordination agreement signed by the three states in Cancun at the UNFCCC COP16, the *Mesa del Katun*, an advisory council which brings together different state government sectors across region and the Peninsula's Climate Change Fund. However, there were caveats. As the Director of Sustainable Planning at SEDUMA commented:

> We have good coordination between the three state environment ministries. We have signed a number of inter-state agreements. However, these agreements are not in the constitution. Furthermore, there is no inter-state independent body [such as an APDT], even though the three governments manage the same ecoregion. The problem is that the legal framework does not support inter-state coordination, and current legislation does not recognize these kinds of inter-state agencies. So, we are obliged to sign 'collaboration agreements', which are voluntary in character [non-binding]. A change in government could undermine all the progress achieved. However, these voluntary guidelines are backed by social capital alliances with the big NGOs, academia and political sectors.

Despite these examples of top-level coordination and collaboration (with their respective limitations), we also found growing frustration with the slow progress around REDD+, confusion as to the direction REDD+ was taking and concerns about how it will affect forest owners. Even the state environment minister recognized that: "The REDD+ topic is manipulated by each ministry to its own convenience.

Each organization has their own REDD+ program, be it TNC, *Financiera Rural*, CONABIO. But it's unclear what coordination there is among them." The UNDP representative, responsible for channeling GEF funds in the region, also identified these different uses of REDD+ in the state, embodied in three parallel projects; (i) International Union for Conservation of Nature's (IUCN) work on landscape restoration, (ii) CONAFOR's REDD+ early actions areas, and (iii) TNC and the *Alianza* M-REDD+.

On the other hand, the director of a local NGO considered that everyone had "hopped onto" the REDD+ bandwagon and suddenly all interventions were considered "REDD+ early actions". A program coordinator at the NGO Pronatura also identified this problem and felt that some actors, despite years of experience in promoting LED rural development, had been displaced by the new discourse: "To be honest I'd prefer all this REDD+ stuff to just come to an end and for them to recognize that this approach will not work, so we can move on to other things or go back to doing the work that we've been doing for years." This interviewee was unconvinced that REDD+ was the best strategy to lower emissions from deforestation and forest degradation, given the particularities of the Yucatán Peninsula. This person considered IUCN's forest restoration initiative to be more in line with the social, physical, political and environmental reality of the peninsula:

> Mexico committed itself during the meeting in Peru to restore 8.5 million hectares of forest landscapes by 2020. The Yucatán peninsula could provide a large amount of those committed hectares, since there are approximately 6 million hectares available for restoration […] aside from 7 million hectares in a good condition in the peninsula.

A key informant at the UNDP concurred and considered that, in the case of Yucatán state, "the issue lies not with avoided deforestation, but in revegetation. This is what REDD+'s real objective should be in Yucatán."

A final thread of unease, already reflected in the above comments about the particularity of the Yucatán ecoregion, was to do with the states' lack of autonomy in the context of a National REDD+ strategy. A coordinator at Pronatura considered that:

> The states want to have control over REDD+ funds, but the federal government has denied this. Campeche [neighboring state] has proposed to the Governors' Climate and Forest Task Force the state's jurisdiction over these matters, but CONAFOR pulled weight, saying the state must be accountable to central government. I believe that if there is no jurisdictional transfer to the states, there will be no progress. Sustainable development implies involving all actors.

Indeed, this legal issue has uncovered a gap in the law regarding the differentiated rights to sell carbon credits, a problem that has slowed down the implementation of the next phase of REDD+ piloting in Mexico, the FCPF-funded Emissions Reduction Initiative (*Iniciativa de Reducción de Emisiones*, IRE).

5.2 Civil society organizations and low emissions development

CSOs are, of course, a diverse group of actors, from producer organizations to national and international environmental NGOs. Particularly in Chiapas, environmental NGOs have been fundamental in defining best practices and generating pilot experiences on the ground around LED and there have been important lessons learned and new skills acquired over the last two decades. However, these regional or local NGOs tend to have limited financial security and are dependent on different donors and funding cycles that do not always acknowledge needs on the ground. As one NGO director in Chiapas commented: "Building governance is a very, very slow process and nobody really funds governance; they'll support you to set up productive projects, adapt to climate change, transfer technology, etc., but not to build governance." In this context of multiple agendas and quick

results, alliances are often key strategies for covering project requirements and securing access to funds. But precisely because of this, these alliances were sometimes seen to be fragile, conjunctural and opportunistic. As most of these NGOs have worked in the same regions (PAs and the biological corridors that connect them), there can be competition to take the credit for collective successes, which are often limited to certain well-disposed communities.

Some CSOs concentrate on limited territorial interventions while others look to influence policy outcomes at a national and state level, participating in multistakeholder participatory councils and forums, and taking on diverse consultancy roles. A first group of environmentally oriented NGOs includes those that consider themselves to have been "doing REDD+" before the implementation of a national strategy (such as Pronatura or AMBIO, pioneers of carbon capture forestry in Chiapas; see Box 5). A second group of NGOs has emerged since 2010, often to deal with issues arising from the REDD+ preparation process itself (examples would be the NGOs *Cecropia* or *Kibeltik* in Chiapas, both of which were founded by individuals and groups working on different areas of REDD+ preparation). Many of these national and local NGOs have operated with funding from the Mexico REDD+ Alliance, a coalition of mainly international NGOs (see Box 6).

Box 5. The *Scolel´te* Program

Scolel´te ("the tree that grows" in Maya-Tzeltal) is a carbon sequestration program established in Chiapas by the AMBIO cooperative in 1997 that promotes reforestation and sustainable forest management within the framework of voluntary carbon credits. Through this program, AMBIO works with rural communities to mitigate climate change, enhance wellbeing and build capacities, employing a territorial approach and promoting local participation.

In order to attain its stated aims in different regions, AMBIO applies the *Plan Vivo* system. This is at once a methodology, a planning mechanism and an international accreditation scheme for carbon credits. The *Plan Vivo* Foundation in the UK certifies the implementation of project activities that enhance ecosystem services and allow communities to formally recognize and quantify carbon sequestration, biodiversity or watershed protection. This system assists land-holders to plan land use at the scale of individual plots over a 5-year period.

At the moment, this scheme involves 1,200 property owners in 90 communities in Chiapas and benefits around 2,500 families who receive financial incentives to protect and manage their forests. However, only 7,606 hectares were included in this program in Chiapas as of 2013, mainly in the tropical forest regions of the state and within or near to protected areas. One limitation expressed by the beneficiaries of the program was the insufficient cash incentives available. Nevertheless, this program was present in all three decreasing emissions sites we covered in Chiapas.

Over the years, AMBIO has been able to attract funding to implement other activities aimed at integral low emissions development. In the Sierra Madre region of Chiapas, for example, AMBIO has promoted the intensification of cattle ranching, conservation agriculture, soil improvements, renovation of coffee plantations and upland reforestation. AMBIO is also working on governance improvements by promoting amongst *ejidos* the definition of internal statutes (*reglamentos internos*) and their legal registration with the agrarian sector. Another strategy has been attempts to standardize rural development program instruments to overcome the problems and duplicated actions that have resulted from every sector using its own planning and evaluation tools.

Over the last 20 years, AMBIO has been at the center of many alliances for change in Chiapas, working with other NGOs, federal institutions and international funders and the *Scolel´te* program is a point of reference for all those working in low emissions development in the region.

http://www.ambio.org.mx/scolelte/antecedentes/

Box 6. Mexico REDD+ Alliance

Established in 2011, this alliance is an initiative led by The Nature Conservancy (TNC), in collaboration with the Rainforest Alliance, *Espacios Naturales y Desarrollo Sustentable* and the Woods Hole Research Center, which seeks to "prepare Mexico for REDD+", with a focus on sustainable rural development. It has been funded by USAID and works in five 'REDD+ Priority Action Areas' in Mexico, which include parts of six states and, in all but one case, are distinct from the CONAFOR REDD+ early action sites. In Chiapas, M-REDD+ works in the Sierra Madre region and in Yucatan, in the Puuc region. The alliance has funded a numerous activities and consultancies, from different pilot projects on the ground that look to develop best practices for LED and climate efficacy to multiple technical studies and field manuals. The Alliance also set up Learning Communities in the different states where it has been operating. These spaces have brought actors together around issues such as territorial governance, gender and REDD+, finance mechanisms, planning tools, MRV and forest management. M-REDD+ staff have also participated in many other REDD+ councils and events and have worked closely with state governments in the development of REDD+ preparedness, influencing many key decisions and policy outcomes. The alliance has supported the generation of seven state REDD+ strategies.

The Alliance's work in the Sierra Madre was limited to generating models of best practices in cattle ranching, fire management and agroforestry through local NGOs. According to one interviewee who had previously worked in the Chiapas state government's climate change department, this was because they had received "a clear mandate not to get involved in government policy". Whilst the Alliance did briefly attempt to create an Inter-Municipal Board in three municipalities of the Sierra Madre, this initiative did not prosper because, according the Alliance's local coordinator, they were "not interested in policy innovations in Chiapas; these efforts are concentrated in Yucatan". Nonetheless, for the Sierra Madre region, the alliance financed the development of the Investment Plan for the Emissions Reduction Initiative (*Iniciativa de Reducción de Emisiones*, IRE), the next piloting phase of REDD+, which will run until 2020. In the Puuc region of Yucatan, the alliance has worked on low emissions agriculture, forest management, charcoal production and local governance. TNC has also supported CONAFOR PES matching funds in the region.

A third group is the ARS, an organizational structure that was established by the new forestry law in 2003 in order to promote regional forest management among forest owners (more often than not, *ejido* members) in predefined forest management units (*Unidades de Manejo Forestal*, UMAFOR) that are defined according to watershed criteria (hence they coincide with no other jurisdiction). These CSOs claim to nongovernmental status is perhaps questionable as it is an organizational figure that stems from federal legislation, and certainly they exhibit differing levels of autonomy vis-à-vis CONAFOR, which has used them to channel their forestry programs and also to assist in the National REDD+ Strategy consultation process. But as organizations that can represent forest owners (private and social property), they are potentially important actors.

A fourth category of CSOs includes the independent organizations that represent forestry *ejidos* and communities, such as Red MOCAF, which represents around 50 community forestry organizations nationwide and has been key to keeping forest communities, often indigenous, on the REDD+ agenda in Mexico. The president of this organization questioned the right of environmental NGOs to represent and negotiate on behalf of forestry communities and stressed the importance of engaging in policy discussions because Red MOCAF represents populations that "will be be directly affected by these policies and their consequences" (unlike urban NGOs). This interviewee considered that in some respects the REDD+ process had empowered Red MOCAF, as it had opened up participatory spaces that allowed this organization to challenge the monopoly (and sometimes legitimacy) of environmental NGOs. Red MOCAF has also allied itself with transnational indigenous and *campesino* organizations such as the Mesoamerican Alliance for Peoples and Forests and has projected its proposals and

concerns in a variety of international forums (such as the COPs), increasing its leverage in the national sphere.[41]

Despite the success of Red MOCAF in positioning itself within the REDD+ process, it has been the environmental NGOs and independent consultants that have prepared – at least in the case of Chiapas – the state's REDD+ strategy document, the proposal for the state safeguards system and the regional investment plans for the IRE (the current REDD+ piloting phase), all with international funding. While these are specialized tasks, they are carried out without significant consultation with rural populations and forest owners (sometimes with legitimate excuses relating to limited budgets and tight deadlines). Thus the content of these documents may respond more to externally designed terms of reference and funding priorities than to regional particularities or local proposals. NGOs can fall into the trap of only being accountable to those 'above' (i.e. funders) and not to those 'below' (beneficiaries). Genuine grassroots, independent organizations were notably absent in the REDD+ debate in Chiapas and Yucatán.

When considering these 'civil society' actors, it is worth noting that the distinction between government and non-government is often tenuous, and similarities of opinion and purpose are often more common than are the differences. This is partly observable in the flow of individuals between the two sectors in the REDD+ world (the current director of the M-REDD+ Alliance had previously worked in CONAFOR, for example). Specialized (technical) knowledge of REDD+ is scarce and ex-CONAFOR staff can easily become independent REDD+ consultants. The exception to this is second-level organizations such as Red MOCAF that represent forestry communities, who have a more adversarial discourse with the government, and attempt to keep concerns regarding poverty and equity in benefit sharing in the REDD+ debate.

5.3 Non-carbon market initiatives

The existing markets for both coffee and honey – in Chiapas and Yucatán, respectively – must be considered examples of collaborative territorial management with LED outcomes. Both these products are sought by traditional and alternative (fair-trade or certified) markets, and the nature of their production – dependent on forests – means that they are important LED options in their respective regions. They are not explicitly part of REDD+ initiatives but support similar goals.

In the Sierra Madre, Chiapas, the coffee cooperatives are important actors in territorial governance, and were identified by many of our key-informant interviewees as being responsible for improved land use. Cooperatives such as *Campesinos Ecológicos de la Sierra Madre de Chiapas* and federations such as *Federación Indígena Ecológica de Chiapas* are the fruit of a historical process in which *ejidatarios* have managed to make important incursions into a market previously dominated by private coffee estates. These organizations provide their own technical assistance, credit schemes and oversee production conditions to ensure that different criteria are met, depending on the market in question. Shade-grown coffee within diversified agroforestry systems has proved to be a landscape that supports and conserves wildlife and environmental services. These organizations are evidence of what can be achieved when *ejido* governance is scaled up around one productive activity.

In Yucatán, it is in the context of honey production that forests are (re)valued. Yucatán is the Mexican state that produces the most honey, the majority of which is exported to the European Union as an organic product. Honey production can play an important part in livelihoods strategies, which were recently threatened by the sowing of GM soya in the Cono Sur region. As we saw in the previous

41 See Sarmiento Barletti and Larson (2017) for a recent review of multiple allegations of abuses of the rights of Indigenous Peoples in the context of REDD+ readiness and implementation.

chapter, through an alliance of academics, NGOs, honey buyers and producers, the permit allowing the sowing of this GM crop was rescinded.

Newer markets are also having positive effects on territorial governance. Resin extraction from the pine forests along the Chiapas Sierra Madre (Ch-3) is a non-timber forest product being promoted by a Mexican company that seeks to substitute imports with national production. Already present in other regions of Mexico, this activity is relatively new to Chiapas, and the company has associated itself with federal environmental authorities as well as with state and municipal governments in order to promote resin extraction in *ejidos* with pine forests. With the support of CONAFOR subsidies, and the technical guidance of a local environmental NGO, the company has associated itself with 14 *ejidos* in the region and there are around 400 ha in production as of 2015. Chiapas is the only state in the country to have resin extraction permits within PAs.

Ejido common-use areas are designated for resin extraction, and remuneration is proportional to the (limited) number of workdays invested. This mechanism has allowed younger generations, who do not possess land titles, to obtain part-time local employment in this activity. Pine resin extraction generates collective benefits that go beyond those directly employed, such as conservation, infrastructure improvements and CONAFOR subsidies, which are distributed among the larger *ejido* population. However, the strategy has yet to attain the productivity goals set by the private company.

5.4 Crises and extreme events

Here, we consider how certain types of problems can shape the potential for change at a local level. In both states, interviews with actors in some land-use sites referred to the role played by external events that were perceived as existential threats and proved to be immediate catalysts that forced a change in 'business-as-usual' behavior and shifted governance arrangements up a gear (at least for a period). These experiences included fires, hurricanes (see Box 7) and crop disease (such as coffee rust, see Box 8) and the responses to these challenges have been expressed in improved territorial (often watershed) management, firefighting capability and fire-prevention practices, as well as inter-government alignment and collaboration.

In the case of the drier, western parts Chiapas, the wild fires that wrought so much damage in 1998 and again in 2003 were a wake-up call for different actors and prompted new collaborations between all levels of government. A CONAFOR office was set up in the region (Cintalapa) and reforms to the Chiapas forestry law obliged the different economic regions within the state to maintain permanent firefighting brigades. CONAFOR signed an MoU with the Chiapas state government to provide funds for firefighting and donated firefighting equipment to municipal governments. The state government also set up the *Centro Regional de Incendios Forestales – Región II Valles*, providing a space in which institutions from all government levels participate: CONAFOR, Secretaría de Medio Ambiente e Historia Natural (SEMAHN), CONANP, SAGARPA, SEDENA, SSP, *Protección Civil* (state government), four municipal governments and a regional forestry association (*Los Ocotones*).[42] A firefighter from another municipality in the region (Villacorzo) explained:

> In the past, we fought forest fires for free. Now we have a paid community firefighting brigade: we take turns in groups of five, each of whom have their routes to control if there are any fires. […] We visit each community and present them with a document, so that they know we are keeping watch over our forests.

42 The involvement of the National Defense Ministry (*Secretaría de Defensa Nacional,* SEDENA) and the Ministry for Public Security (*Secretaría de Seguridad Pública*, SSP) reflect the importance of fire control to national security. This no doubt lends a seriousness and authority to proceedings, sometimes lacking in other territorial management spaces.

Box 7. La Suiza watershed: Building territorial governance

An interesting, though small-scale, example of governance construction in Chiapas is the experience of 'La Suiza' watershed, situated in the inland slopes of the Sierra Madre. Most of this 6000-ha area (84%) is included within the El Triunfo Biosphere Reserve, nonetheless it has been hit hard by extreme weather events, particularly Hurricane Stan in 2005, which destroyed one settlement and seriously affected the local economy. Since 2010, the National Forestry and Agricultural Research Institute (*Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias*, INIFAP) has been promoting a pilot project for integrated watershed management in La Suiza, in alliance with private donors (El Triunfo Conservation Fund, FONCET), and the National Commission for Natural Protected Areas (CONANP). The methodology takes the watershed as the basic unit for territorial planning and action, using local livelihoods and vulnerabilities as the starting point. There is also an emphasis on local capacity building and a mix of private and public funding to ensure continuity in the actions undertaken (e.g. reforested areas after Hurricane Stan have now been included into PES schemes – which normally prioritize primary forests – in order to assure the permanence of this revegetation).

A concrete governance instrument that came out these interventions was the Inter-community Territorial Action Group (*Grupo Intercomunitario de Acción Territorial*, GIAT), which includes three representatives from the five *ejidos* and one private property in the watershed. This novel form of organization, which has been formalized as a civil association (non-profit legal figure), has created a new level of governance for planning and concentrating funds for territorial governance. According to the main researcher promoting these actions in La Suiza, the GIAT had provided a space with sufficient influence, legitimacy and capacity to overcome the historic lack of planning and follow-up in the region and the system of 'perverse subsidies' offered by different government sectors.

As an important region for biodiversity conservation, the provision of environmental services and organic coffee production, this initiative has secured financial support and has become a regional 'showcase' for improved governance structures. Even the municipal government, Montecristo de Guerrero, has asked for tips on how to attract outside funding. There have been some disagreements with the biosphere reserve's directorate, reflecting distinct visions regarding the role of productive landscapes in conservation. Nonetheless, according to the researcher cited above, the secret to the La Suiza's emerging success has been the focus on integrated watershed management, the continuity in the actions due to diverse funding sources, a good level of participation and the scale of the governance intervention. He also recognized that shocks to the system (extreme weather events) had created an indispensable disposition amongst the local population to collaborate in the pilot scheme and improve local territorial governance.

A local CONAFOR delegate in Cintalapa explained that despite a clear common concern (forest fires), there had been some problems along the way. An initial challenge was that everyone wanted to be in charge. A second problem was related to the short cycles of municipal government (3 years), meaning that in practice one year in every three was problematic as governments came to the end of their administrations, affecting budgets and access to firefighting equipment.[43] According to this interviewee, a third difficulty was that the state government also had "issues" with its budget that affected its ability to consistently support firefighting activities, despite having an MoU with CONAFOR to transfer funds from the federal to the state level for this purpose. A final problem was the commitment of certain NGOs in this joint effort; this CONAFOR interviewee mentioned that an NGO – described as a "key ally" – had suddenly withdrawn, because of funding cuts and changing priorities.

Nonetheless, in interviews with municipal governments in the region, and with NGOs working in the Sierra Madre, it was clear that governance around fire management had improved enormously

43 According to this interviewee, CONAFOR lends firefighting equipment to municipal governments, but often it is not returned at the end of the 3-year cycle and CONAFOR cannot do much about it.

Box 8. The Coffee rust epidemic: An emerging challenge to livelihoods and ecosystems

Since 2012, atypical outbreaks of coffee rust have spread throughout coffee plantations in Latin America provoking a socio-ecological crisis which has been associated with climate change (Avelino *et al*. 2015; McCook and Vandermeer 2015). This epidemic, caused by the fungus *Hemileia vastatrix,* has meant increasing losses in the quantity and quality of harvests for coffee producers in Mexico. Chiapas is the most productive state with more than 250,000 ha of coffee plantations (SAGARPA 2016), which are generally shade-grown *Arabica* coffee cultivated on small plots (< 1 ha on average) in mountainous regions. This activity plays a crucial role in household incomes throughout marginalized regions like the Sierra Madre in Chiapas.

The economic losses caused by the coffee rust epidemic have induced a process of land-use change, from organic agroforestry coffee systems with diversified shade, to agricultural monocultures such as maize, pastures or new coffee varieties, promoted by government institutes and private companies, which are rust-resistant yet require less shade and more agricultural inputs. As such, the coffee rust epidemic has been identified in recent studies as an important driver of deforestation and forest degradation (Covaleda *et al.* 2014; AMBIO 2015). In the coffee-producing regions of the Sierra Madre in Chiapas, land-use change due to coffee rust has been identified as a threat to the carbon stocks, biodiversity and hydrological services that agroforestry systems provide in and around protected areas in the region.

The government response to the crisis has been to promote the large-scale production of rust-resistant coffee varieties based on imported seeds. Nonetheless, this has been characterized by rumors of corruption and nepotism, while proving to be only a partial solution, largely incompatible with sustainable small-scale production in biodiversity hotspots, and with the potential to generate more problems than it solves (Libert Amico 2017).

However, the crisis has also created a space for the construction of new forms of articulation and collaboration. While some coffee cooperatives have been forced to shut down operations, pioneering cooperatives in the Sierra Madre have built networks with responsible buyers, international foundations and federal environmental institutions in order to promote coffee varieties already present in their members' plantations that have proven tolerant to coffee rust, while also being compatible with shade-grown and organic plantation management.

By correlating carbon stocks and biodiversity with rust incidence and meteorological data, the scientific research network *Programa Mexicano del Carbono* (PMC) has built a campaign to recognize and promote the ecosystem services provided by shade-grown coffee and to argue in favor of alternative forms of coffee rust management in the Chiapas Sierra Madre. PMC has also been able to build multilevel alliances, recently securing collaboration agreements with CONAFOR and SAGARPA which include the recognition of shade-grown coffee in Mexico's Emissions Reduction Program (recently presented to the FCPF), as well as collaboration with the agricultural ministry's agency for agricultural epidemics (*Servicio Nacional de Sanidad, Inocuidad y Calidad Agroalimentaria*, SENASICA), seeking to foment an insurance scheme which could protect coffee producers from economic losses caused by the epidemic.
More information available at: http://pmcarbono.org/pmc/proyectos/REDD_para_Salvar_la_Sombra_Sierra_Madre_Chiapas.php

over the last 10–15 years (something evident in the decreasing areas affected by fires). This is important because according to informants in this region, fire is the principal cause of deforestation and forest degradation and most fires are caused by poorly monitored agricultural fires. It is thus a key issue to be addressed in emissions terms and the human cause is susceptible to sensitization, training and organizing. The work of local NGO Biomasa, which has been working on fire issues in the municipality of Villaflores since 2007, is a good example of how municipal governments can be strengthened through an alliance of funders, different levels of government and NGOs. A combination of municipal investment, international funding (US Forest Service and Mexico REDD+ Alliance), improved legislation and inter-government coordination around fire have all had positive impacts.

According to regional informants, Biomasa has managed to overcome the central weakness of municipal governments (only 2 years of effective administration before election season and closure of the books) by ensuring continuity between administrations.

In the case of Yucatán, the most noticeable cause of 'spontaneous' improvements in governance arrangements over the last two decades has been hurricanes, which were considered a significant cause of deforestation and forest degradation, through high winds and flooding, which can kill forests (especially in coastal areas where salt water is pushed inland). Due to its geographical position and topography, Yucatán has always been vulnerable to hurricane damage, nonetheless, the removal of coastal mangroves and periods of drought have accentuated this in recent decades. As we mentioned in Chapter 3, the Bocas de Dzilam reserve (Y-4) was seriously affected when Hurricane Isidore made landfall in September 2002 as a Category 3 storm. Loss of life was very low, but the storm destroyed forests, houses and infrastructure. What particularly struck informants at the time was the destruction of the mangrove forests, which had not happened in living memory; only now are the mangroves in the two coastal reserves recovering. Interviewees in the coastal municipality of San Felipe (Y-4) explained how this event had prompted actions from various quarters that aimed to restore the damage caused by the hurricane and strengthen future resilience in the region. In particular, the state government began to pay more attention to the region, as did university researchers and international funders.

The interesting aspect of this experience is that the attention provided in the wake of Hurricane Isidore appears to have left a permanent legacy, in terms of collaboration, organization and protocols. Although no hurricane of comparable strength has affected the region in the last 15 years, these efforts have remained relevant in the context of forest fires, which have become more frequent because of prolonged droughts. Informants remarked upon the new vigilance and sanctions around the mangrove forests and a local revaluation of these ecosystems. In 2009, a regional round table was set up that brought together four municipalities, including San Felipe, funded initially by USAID and later by UNDP. This space has helped strengthen multilevel governance around fire-prevention and contingency plans for hurricanes.

However, not all municipalities have participated in these new spaces. The other municipality in our case study in the Bocas de Dzilam reserve (Y-4), Dzilam de Bravo, was not participating in any of these new coalitions and, historically, its cooperation with its neighboring municipality in the context of the reserve has been minimal. Although interest in the mangroves after the hurricane prompted a tourism project in Dzilam de Bravo, funded by a range of donors, the cooperative project collapsed and was sold to a private investor. As a result, the municipality was blacklisted by the Indigenous Peoples' Development Agency (*Comisión Nacional para el Desarrollo de los Pueblos Indígenas,* CDI) and technically remains indebted as a result of the failed cooperative. Low social capital – blamed locally on an individualist 'fishing' culture – reflected in weak municipal government has meant that this municipality has not associated itself with wider regional governance processes.

5.5 Conclusions

As we have seen, there have been multiple attempts to improve collaboration and form alliances to resolve or mitigate different environmental problems and promote to some degree LED, with differing levels of success (and failure). These efforts have been driven in part by government policies and programs, often in collaboration with CSOs, particularly in and around PAs, with 'special' regional forestry programs and REDD+ early actions. On the whole, these potentially innovative programs have not fulfilled their potential or significantly altered 'business-as-usual' land-use scenarios because of the unflexible ways in which government institutions operate. Ambitious government programs designed in central offices 'hit the ground' in diverse territories with differing levels of social capital and at diffferent political moments. Centralizing tendencies combined with the weakening of federal environmental institutions through recent budget cuts have jeopardized the success of REDD+ early

actions and many of those we interviewed were becoming skeptical about the government's ability to deliver on REDD+'s initial promise. These cuts to federal budgets also left more space for the participation of certain NGOs.

The significant participation of CSOs in the promotion of LED initiatives and the REDD+ process has undoubtedly enriched the debate and significantly supported government policy. This level of civil society participation would seem positive, but it also reflects a weakened public administration and occurs in a context in which rural producers, forest owners and the promoters of bottom-up governance initiatives are largely absent from participatory spaces and decision-making processes around REDD+. Thus, there exists some concern regarding the standards of accountability and transparency against which many NGOs are held, particularly in the context of interventions at local levels where information can be scarce and local inhabitants are not always sure which actors and projects are governmental and which are not.

In both Chiapas and Yucatán, we identified existing markets that were promoting LED and 'doing REDD+' before the government's promotion of the international mechanism. Particularly in Chiapas, coffee cultivation was seen as an important opportunity for the implementation REDD+, but the coffee rust epidemic and inadequate support for the sector was seen as wasting an opportunity for building important synergies between the aims of REDD+ and local livelihoods. At the same time, in our interviews it was interesting to come across many examples of unplanned colaborations and coalitions for change that had come about through experiencing extreme events, such as forest fires and hurricanes. It appears that unplanned, 'reactive' organizational processes can be more effective and be perceived as more legitimate than planned initiatives. In the following chapter, we look at participation and benefit sharing, but from the point of view of rural inabitants and natural resource users, paying particular attention to questions of legitimacy and equity.

6 Participation and benefit sharing: Views from the communities

In this chapter, we draw mainly from interviews carried out with *ejido* members and other rural inhabitants in the land-use sites we studied to look at issues related to participation, inclusion and equity, and consider the winners and losers in some of the land-use change and LED processes described so far in this paper. After some general comments regarding the state of democracy in Mexico, we specifically look at multi-actor participatory entities around land use and REDD+, concluding that they have proven to be important, if deficient and not truly representative, forums for information sharing, interaction and collaboration. We also consider the national REDD+ consultation process and the issue of REDD+ safeguards. We then look at the question of benefit-sharing arrangements, specifically analyzing the interface between the CONAFOR-PES program and *ejido* governance. We find that the *ejido* is the dominant template for benefit-sharing arrangements to date, which has largely been perceived as legitimate, but faces challenges in the establishment of equity in the context of PES (and by extension REDD+). In the final part of this chapter, we highlight the importance of intermediary actors in the implementation of forestry policy and REDD+ early actions, concluding that they operate within a neo-corporatist structure and logic, competing to access centrally defined programs, without contesting policy content itself.[44]

6.1 Democracy, legitimacy and accountability

The broader national context of democratization permeates all levels, setting parameters and expectations. Interview questions around legitimacy elicited little discussion, perhaps because expectations are so low and few authorities are seen as legitimate. Corruption was perceived as problematic by many interviewees, who identified the protection of elites, the misuse of public positions and the theft of public monies as commonplace – as a local historian we interviewed in Yucatán commented: "Corruption is not the norm, it's the rule." While it is difficult to verify whether these perceptions are rooted in fact, the *perception* of corruption and self-interest among government workers, is almost as damaging as the reality itself, as it erodes trust and skews expectations. As a researcher in Chiapas commented: "The government has a problem; nobody believes them!"

In our interviews, the question of 'accountability' was considered problematic by many actors at all levels, from *ejidos* to federal government. Although most *ejido* members considered their level of (*ejido*) governance to be legitimate, it was also clear that there existed many obstacles to full accountability between *ejido* authorities and their respective assemblies (although there was also some evidence that PES programs were improving internal *ejido* accountability processes). In interviews with rural producers, there was a sense that the state and national government apparatus was fairly impenetrable. As a farmer in the Puuc Biocultural State Reserve said, "If government institutions don't keep their word or comply with their part of the project, really there's nothing we can do". A farmer from a neighboring *ejido* considered that it was "difficult to hold any of these institutions to account – if you try, you hit a wall". In many regions of the country, federal environmental policy, in the shape of unilateral PA decrees and an overly bureaucratic forestry sector, has been associated with exclusion and resource deprivation in the past (Boyer 2015).

44 See Kashwan (2017) for a recent discussion on corporatism and its relevance for forest management in Mexico.

These perceptions contrast with the fact that in Mexico over the last 20 years there have been multiple efforts to open up spaces to enhance multilevel governance, inter-sectoral collaboration and citizen participation, accompanied by reforms that oblige levels of transparency on the part of federal institutions. But opinions regarding the efficacy of these participatory councils and platforms were generally unfavorable, accompanied by a sense that government institutions often do not act in good faith, and participation is limited to attending meetings and signing attendance lists, while the decisions are taken elsewhere.

The scale of NGO participation in national REDD+ implementation combined with the conditions imposed by international guidelines and funding has meant that much of the international and civil society discourse around participation, consent, equity, safeguards and good governance has seeped into official, government discourse. In this sense, in the context of REDD+ implementation, the divide between government and non-government discourse was often indistinct. Nonetheless, there was only a partial congruence between this official government discourse and practice. This was due to many factors, but particularly to the distance between central offices and local delegations (who were not always 'on message' regarding REDD+) and a lack of institutional leadership with a budget adequate to the task of building consensus around REDD+. As we shall see, there has been a concerted effort by CONAFOR to put the National REDD+ Strategy under public consultation and scrutiny. However, inexperience and a lack of resources have affected the scope and success of this exercise.

6.2 Participatory spaces around natural resources and REDD+

From the early 1990s on, Mexican legislation has provided opportunities for the creation of participatory spaces in different jurisdictions that look to include, to varying degrees, local inhabitants in decision-making processes. This started with the advisory councils for PAs and subsequently broadened to include municipal planning committees (*Comité de Planeación para el Desarrollo Municipal*, COPLADEM), municipal sustainable rural development councils and watershed councils and committees. At state and national levels, there are forest and climate change councils, as well as technical consultative councils on REDD+ at both levels. As we saw in the last chapter, new laws have created new collaborative commissions and councils to improve inter-ministerial cooperation, such as the CICC. In the case of the Yucatán peninsula, there are a number of collaborations between the three states around climate change and REDD+.

However, after an initial boom in levels of participation after 2000, with a change in the ruling political party, enthusiasm has ebbed and attitudes have become cynical regarding the effectiveness and legitimacy of these spaces. Most of our key informants expressed skepticism and disappointment around 'participatory' experiences and the impact of the new commissions, pointing to their infrequent sessions, problems of representation and the ways in which the inter-ministerial commissions are often little more than photograph opportunities for politicians. The president of Red MOCAF referred to a "culture of submission" in which nobody wants to question authority, while others let self-interest take over, using participatory platforms as an opportunity to access projects and financing. It is clear that it is difficult to 'decree' participation, but at the same time these platforms can be appropriated and empowered.

6.2.1 The REDD+ technical consultative councils

The REDD+ technical consultative councils (CTC-REDD+) were set up from 2010 onwards as open participatory platforms that could offer technical support to REDD+ implementation. There is a national CTC-REDD+, formally constituted in May 2010, and the Chiapas and Yucatán CTCs, which were set up in 2011 and 2013, respectively. The CTCs are not legally binding and do not have their own budgets, which many interviewees recognizedas a weakness of the state CTCs, along with their inability to bring relevant actors together (particularly SAGARPA). The lack of a budget was linked to

problems of representation, as the productive sectors and ARS are absent or under-represented in both states. It also translates into a dependence on the respective state environmental ministry and a lack of autonomy in programing meetings or even having a place to hold meetings.

In the case of Chiapas, the CTC-REDD+ grew out of an earlier group that had come together over environmental services in the state, mainly made up of academics and NGOs. This legacy has persisted and the CTC in Chiapas was identified as an important space for actor articulation that in its first years (2011–2012) produced important policy documents (eg. PACCCH). But participation has been largely dominated by environmental NGOs with trajectories in climate change mitigation and adaptation and the presence of federal institutions, particularly SAGARPA, has been intermittent. While the CTC in Chiapas has allowed these NGOs to keep abreast of developments and to influence policy outcomes, the increasingly technical language that characterizes the meetings has made the CTCs less accessible to other interested actors, such as forest owners and the agricultural sector. In practice, the CTC has also become a space where diverse REDD+-related consultancies have been assigned to participating NGOs, potentially creating conflicts of interest between the (impartial) advisory role of the committee and institutional agendas. Furthermore, there have been tensions between state actors and CONAFOR, as for example in the case of the development of a state safeguard system, where CONAFOR put a brake on regional initiatives because national definitions around safeguards had not yet been determined. Some interviewees considered that in recent years the CTC in Chiapas had lost momentum and had become overly dependent on the state environment ministry (SEMAHN), in whose offices the meetings are almost always held. However, in the second half of 2017, activity picked up again with the need to approve the state REDD+ strategy and MRV system.

In Yucatán, CTC-REDD+ is a more recent creation and has had regular meetings since the end of 2013. Importantly, there is also a CTC-REDD+ for the whole peninsula, which had strengthened coordination around REDD+ implementation in the region. Nevertheless, the Yucatán state CTC has also had problems of representation according to informants. As one rural participant commented:

> When the CTC Yucatán started, we considered it to be a key space and an opportunity to express opinions and have some incidence in the application of policies in the region. But really whom are we advising? Nobody really listens to our advice. Also, representation is limited. Although in theory there are representatives from each sector, in reality not all of them participate, partly because there is no budget available for transport and hotels, etc. The CTC is presided over by the SEDUMA, [but] SAGARPA doesn't participate, it's mainly NGOs.

The national CTC-REDD+ has been a more diverse forum, with a wide range of actors, a feature that has made decision making more difficult according to some interviewees but also enhanced legitimacy, although one interviewee complained that it had become a space where "we do the government's job". Another participant in the national CTC-REDD+ considered this committee to be fairly impotent, especially in contrast to CONAF, where this person had participated in the working group on the National REDD+ Strategy. This interviewee considered their participation in the latter space to have been far more productive, partly because numbers are limited and your name has to be put forward by others and also because the National Forest Council has a legal mandate to advise the federal forestry sector, giving it a weight that the CTCs do not have.

6.2.2 The National REDD+ strategy consultation

The public consultation process was divided into three phases – informative, consultative and integrative – and commenced at the beginning of 2015. The final document was approved by the CICC in July 2017 and published the following month. The informative process was conceived as having two target populations, the general population and the *ejidos*, communities and indigenous populations. At an initial meeting of the REDD+ working group of the National Forest Council held in December 2014, participants were able to contribute ideas regarding the consultation process,

many of whom emphasized the importance of obtaining free, prior and informed consent for REDD+, especially given the perception that no such consent has been sought for all the mining activities in indigenous territories.[45]

To carry out the consultation with indigenous populations, CONAFOR signed an MoU with the CDI. There followed a concerted effort to generate informative and accessible materials in the more spoken indigenous languages (posters, leaflets) and broadcast radio programs in indigenous languages on REDD+. At a different level, funding was made available by CONAFOR for ARS to hold workshops on the National REDD+ Strategy with their members in their respective regions. But not all regions received funding and the character of these events was often determined by the forestry technician associated with each forestry association.

This informative phase coincided with our interviews, hence our first-hand information does not reflect, perhaps, the level of knowledge that may now exist regarding REDD+ implementation in Mexico. Nonetheless, it was striking that in Chiapas and Yucatán, outside of REDD+ early action areas and the environmental sector, few people had heard of REDD+. The consultative phase was done through an on-line platform, via existing participatory spaces (such as the CTCs) and through state forums. In the case of Chiapas, one of the authors was able to attend this event in Tuxtla Gutiérrez (state capital). The event was characterized by much protocol, and there was very little time to actually express views, doubts and recommendations. The CONAFOR staff facilitating the event appeared to have little experience in managing groups and eliciting opinions. A three-course meal was then served for all the participants after half a day of activities.

Free, prior and informed consent is notoriously difficult to attain over large, diverse territories. Nevertheless, in the case of the National REDD+ Strategy, it is difficult not to see it as a case of how good intentions fell short in practice. The national media was not used to spread information about REDD+, and there was nothing on national television or radio. The collaboration with the CDI to carry out the consultation with indigenous populations meant that this institution used its existing networks with pro-government indigenous representatives and organizations and may have failed to address dissenting voices. The use of ARS made operational sense for CONAFOR but meant that the REDD+ message only reached the ears of the largely converted. Given the breadth of the National REDD+ Strategy – effectively a new paradigm for ensuring LED at a national level – one could argue that the consultation process did not incorporate actors outside of the forests, and hence those most directly linked to deforestation and forest degradation processes.

6.2.3 Safeguards

Participatory forums, transparent information and free, prior and informed consent consultations are all components of proposed REDD+ safeguards. The REDD+ safeguards were first developed at the Cancun COP16 in 2010 and many of these have now been integrated into national and subnational legislation in Mexico. For example, in 2012, Article 134bis of the Sustainable Forest Development Law was promulgated, recognizing the rights of local users and owners to the benefits that derive from environmental services management and carbon capture.

Although further ‘safeguards’ are listed in the National REDD+ Strategy, the development of a safeguards information system is still in progress, despite Mexico’s desire to fulfill international requirements of the proposed REDD+ mechanism. As part of REDD+ preparedness activities carried out by NGOs, civil society networks in Yucatán and Chiapas have developed – through consultancies – proposals for state-level safeguards information systems, although these have yet to be implemented.

45 http://www.enaredd.gob.mx/wp-content/uploads/2015/04/relatoria_panel_consulta_Dic2014.pdf

However, there is still a general lack of access to information on the social and environmental safeguards that are implied in LED initiatives, while confusion on this topic is clearly expressed through the divergent definitions and interpretations that actors provided in interviews. In our own participations in meetings on this topic in Chiapas, there was much emphasis on the legal aspects of safeguards and on the technicalities involved in harmonizing different bodies of law without explicitly considering current political (or legal) *practice* and the particularities of (human) rights challenges at a subnational level. Also absent was a discussion of the ways in which compliance with a safeguards system would effectively be monitored at a subnational level. The methodology employed by the consultants and NGOs that have won contracts to develop these systems at a subnational level has been designed by the United Nations Development Program and gave the consultation exercises a generic feel that did not encourage debate on specific regional realities. The currently low levels of transparency and accountability throughout different levels of government make this pending activity an urgent need.

6.3 Benefit sharing

The issue of benefit sharing has been central to the REDD+ debate in Mexico, particularly for representatives of forest communities and some NGOs seeking to ensure greater equity in benefit distribution. This is a complex issue that operates at different scales. The UNFCCC does not specify how internal resources should be distributed, so although countries report results at a national level, every country is free to design its own system of benefit sharing. The discussion thus becomes about how to distribute funds vertically and horizontally, particularly among those contributing to REDD+ processes in rural communities. There has been considerable concern about this among many NGOs and a lot of academic research has been carried out in Mexico on how to implement a pro-poor REDD+.[46]

Within REDD+, carbon services can be seen to operate in two distinct ways. On the one hand, there is carbon sequestration and on the other, avoided deforestation and degradation. The first is measured against the past and the second is measured against the future, or rather a hypothetical, extrapolated 'business-as-usual' model of the future. Carbon sequestration, and the right to benefit from this, tends to be related to property rights. The reforms to the forestry law mentioned above (Art. 134bis) now recognize the owner of the forest as the owner of accumulated carbon (which is legally a collective resource in *ejidos* and communities). As the minister for the environment in Yucatán quipped, "*el carbono es de quien lo trabaja*".[47] The second type, however, is more complicated as it is related to the right to benefit from something that did not happen and does not exist – avoided deforestation and forest degradation. Skutsch *et al.* (2017) analyze the benefit sharing outcomes that might flow from these two forms of conceiving carbon services within REDD+.[48]

REDD+, of course, is still in a piloting phase in Mexico, and the different benefit sharing implications of distinct interpretations of REDD+ are still unclear. For example, the Emissions Reduction Initiative's Investment Plans, which will supposedly be administered by APDTs, offer different opportunities for benefit sharing when compared to CONAFOR's REDD+ early actions, with their emphasis on forest owners and PES. Nonetheless, as mentioned earlier, Mexico has the experience

46 For example, the IUCN-funded research project: "REDD-Plus benefits: Facilitating countries and communities in the design of pro-poor REDD-Plus benefit sharing schemes". See also Skutsch (2013); Skutsch and Balderas (2016); Skutsch *et al.* (2017).

47 Giving a contemporary twist to Zapata's call to arms during the Mexican revolution: "*La tierra es de quien la trabaja*."

48 Skutsch *et al*. (2017) conclude that an 'input-based' system (or an 'effort-based' system) is more pro-poor in the sense that benefits would not be tied to land ownership and a broader section of the population could be involved. On the other hand, Skutsch *et al*. (2017) point out that ensuring payments to the poorer sectors of the population does not necessarily translate into the avoidance of deforestation and degradation, as it is generally other wealthier and better connected actors that are causing this, so this strategy may not be very cost effective in terms of emissions reduction or avoidance.

of a national PES program run by CONAFOR since 2003. In all the decreasing emissions sites, CONAFOR-PES were present to a degree, particularly in the REDD+ early actions sites. The benefit-sharing arrangements derived from these PES give a number of clues as to how benefit sharing might be managed by *ejidos* and communities in different REDD+ scenarios. Before looking at this, however, it is necessary to give a brief idea of the current state of *ejidos* as governance institutions.

6.3.1 *Ejidos* as governance institutions

Although the *ejido* is sometimes seen as a fourth level of governance in Mexico, beneath the municipal level (Lozano 2012), it is still a *property* institution, whose assembly represents primarily the interests of its members. Most *ejidos* in Mexico are currently made up of different categories of members. In first place are the *ejidatarios*, or land rights' holders, who are recognized by the government agrarian sector (*Registro Agrario Nacional*, RAN) as legal holders of land within *ejidos*. Usually these *ejidatarios* have three types of landholding, a plot in the village for their house (*solar*), an agricultural plot for farming (*parcela*) and a portion of common-use land (*área de uso común*), which usually corresponds to forest or grazing land. Strictly speaking, only *ejido* members have the right to participate and vote in the *ejido* assembly, as well as choose their *ejido* leader (*comisariado*), usually every 3 years. The number of *ejidatarios* usually remains stable in an *ejido* and *ejido* rights cannot be subdivided, between various offspring, for example. This means that over time, in almost all *ejidos*, the number of adults without land rights has increased as the population has grown. These are often children of rights holders who did not inherit land rights from their fathers, though they also include recent arrivals in the *ejido*. These non-rights holders are divided into three sub-groups. These are *avecindados* ('neighbors'), who are *ejido* residents that have no land beyond a house plot in the village, and '*posesionarios*', who are inhabitants that have access to land (usually through informal purchases from *ejido* members) but do not have the right to participate and vote in the *ejido* assembly. In third place there are those with no rights and no property, a sub-group mainly made up of women and younger men, who are not ejido members, *avecindados or posesionarios*.

With the reforms to the *ejido* sector in 1992, *posesionarios* and *avecindados* were recognized, for the first time, as 'agrarian subjects' (*sujetos agrarios*), despite not being able to participate in the *ejido* assembly. The reforms also permitted the rental and eventual sale of *ejido* lands to outsiders, although it is common to put restrictions on the sale of land to outsiders, thus limiting the legal privatization of *ejidos* (see Introduction). Although PROCEDE, set up to activate the reforms, sought to clarify many of the *de facto* situations within *ejidos*, it has been argued that it ended up creating more 'anomalies' and extra-legal practices (Torres Mazuera 2015, 2016). These anomalies are related to a number of factors, such as out of date official records of the land rights holders, which occurs when land is 'ceded' from an *ejidatario* to an outsider, or common-use land that is actually subdivided in practice. This means it is difficult to make any useful generalizations about the current state of affairs regarding internal arrangements, levels of participation and access to land and forests in *ejidos*.

So, the *ejido* sector in Mexico is currently characterized by a population that has differentiated rights to land and forest (nationally, women only account for around 25% of *ejido* rights holders in 2017).[49] Skutsch *et al.* (2017) suggest that at least 30% of families in *ejidos* have no land rights, although this figure varies from case to case and is undoubtedly on the increase. These degrees of inclusion–exclusion and questions of *de facto* access to (and dependence on) forest areas by non-rights holders are the very stuff of local 'governance'. Despite the official discursive emphasis on this in the National REDD+ Strategy, there has been no noticeable engagement between the agrarian and environmental sectors to address the challenges that arise from trying to ensure equity in benefit-sharing on an uneven playing field. As a consultant working with GCF in Chiapas commented:

49 http://www.ran.gob.mx/ran/index.php/sistemas-de-consulta/estadistica-agraria/estadistica-con-perspectiva-de-genero. Consulted 9 January, 2018.

> REDD+ puts the tenure question back in the spotlight, although not directly, rather as a consequence of the benefit-sharing question. In my opinion, this question of the land and ownership in the context of REDD+ has not been sufficiently discussed at a national level.

Within the *ejido*, the dominant criteria for maintaining this system of differentiated rights (and hence eligibility for most government programs) is 'seniority'. For example, in the case of *ejidatarios* who colonized tropical forest areas in the 1960s and 1970s (as happened in many parts of Chiapas), everyone recognizes the risk, effort and investment that was required to establish agricultural fields in forest lands and obtain the legal recognition of the *ejido* and the rights that stem from that. This resonates with traditional indigenous and *campesino* ideas about rights as something acquired through good service to the community, and not something given (automatically) at birth. But at a national level, *ejido* rights holders now have an average age of over 60, effectively a gerontocracy. This situation reveals itself in the general frustration felt by the younger, excluded generations across rural Mexico, and demands for access to land and to programs that might support landless *campesinos*.

6.3.2 *Ejidos* and CONAFOR-PES

As we saw in Chapter 4, CONAFOR-PES have been running for 15 years in Mexico and the program has gradually evolved from a cash subsidy per hectare of forest, requiring little local participation, to a more integral program that looks to foster co-responsibility with local communities. As forest areas in *ejidos* and communities are legally common property, the money is paid annually to the *ejido* authority (*comisariado*) during project cycles of 5 years. This we have interpreted as an affirmation and legitimation of *ejido* authorities in a broader context in which these authorities are increasingly bypassed by government programs. In order to ensure more transparency and accountability in the management of these funds, oversight committees have been set up to perform this function, often to good effect. Frequently these committees supported transitions from one *ejido* commissioner to the next (usually every 3 years), and in some cases ex-*ejido* commissioners have made good oversight committee members, given their experience in the administration of the program.

In recent years, more conditions have been placed on PES payments and currently 40% is expected to be dedicated to 'conservation actions', such as maintaining fire breaks and forest monitoring. This means that a part of the payment is considered to be wages, which can entail, in practice, a wider distribution of the cash benefits, as non-rights holders – often younger males – have the opportunity to earn. Other conditions have also been established to continue receiving payments, such as carrying out territorial planning exercises (*ordenamiento territorial comunitario*) and developing, or updating, the internal rules of the *ejido* (*reglamento interno*).[50] The president of a regional forestry association in Maravilla Tenejapa (Ch-1) explained to us that all 23 *ejidos* in the association had updated their *reglamentos internos* in the context of this CONAFOR program. A council of 10 *ejidatarios* was named in each member community to go through and approve the drafts of the new *reglamentos internos,* a process this interviewee considered to be legitimate and effective. The most recent tendency has been away from simple payments to forest-owning communities to a matching-funds model in which third parties can design the program and take responsibility for its operation. In Yucatán, the involvement of TNC in this matching-fund PES program has been particularly innovative and developed largely in tandem with local *ejidos*, thus tailoring the payments/benefits more to local needs (see Box 9).

Nonetheless, in the majority of PES cases we studied, we found that cash payments had been monopolized by *ejido* rights holders. The perceived legitimacy of this arrangement varied, depending on whether co-benefits were transferred to non-rights holders and the existence of other income

50 These activities have been funded by the CONAFOR PROFOS program (*Programa de Fomento a la Organización Social, Planeación y Desarrollo Regional Forestal*). A program that was incidentally cancelled in the last round of federal budget cuts.

Box 9. CONAFOR local PES mechanisms through matching funds

In 2008, CONAFOR introduced a new matching funds scheme – *fondos concurrentes* – which looked to involve third party funders (ideally regional environmental services users) on a 'peso for peso' basis. This scheme was more flexible than previous ones, allowing the third-party funder to choose where and how the program is implemented. They can go beyond the CONAFOR defined 'eligible areas' and the funds can be used in different ways, depending on the negotiations between the forest owners and the third-party funder. In Chiapas and Yucatán, funding has come from the Federal Electricity Commission, the Chiapas state government, IUCN, TNC, amongst others. In interviews, it was clear that the matching funds scheme could be put to a variety of uses with differing outcomes. When the co-financing partner is the state government, as with the SEMAHN in Chiapas, there were suspicions around the political use of these funds, particularly in the case of the Lacandon Community (a traditional political client of the state government), which has received the bulk of the Chiapas' state government funding to date through this mechanism. However, in the case of TNC's participation in the matching funds scheme with three *ejido*s in the Cono Sur region of Yucatán, it was clear that the scheme's flexibility could be put to good use, and legitimacy levels were high (see Box 10). However, a PA director mentioned the difficulties of attracting third-party funders in order to activate this scheme in parts of the states not so well known for their biodiversity.

Box 10. San Agustín, Tekax, Yucatán.

The *ejido* of San Agustín in the municipality of Tekax, was often mentioned in interviews as a regional reference point for community forest management and REDD+-type actions. The *ejido* was established in 1968 by *campesinos* from the north of the state and has an area of 34,479 ha, of which over 90% is forest and common use. According to interviewees, officially the *ejido* has 366 *ejidatarios* but, in reality, only 29 *ejidatarios* live permanently *in situ* and participate in decision-making processes. The others have returned to their place of origin, migrated elsewhere or, in some cases, never settled in the *ejido*. Although formally all the *ejidatarios* – resident or not – have a right to participate in the general assembly (and benefit from the forest), agrarian law permits that this body operate without a majority under certain conditions. According to the *ejido* members interviewed, the assembly was considered effective as a decision-making body, and had the power to sanction non-participation.

Due to these favorable circumstances, this *ejido* has received much assistance, training and funding from a variety of actors promoting LED, many of whom have subsequently used San Agustín as an example of what can be done in terms of sustainable forest management and benefit sharing. The *ejido* has received hydrological PES since 2008 and in 2014 began to receive matching-funds PES, with TNC acting as the co-funder and manager. The *ejido* belongs to the Regional Forest Association *Nukuch K'aax*, has a forestry technician it chose and trusts, and has SEMARNAT permits to manage 4000 ha of forest for charcoal production, which provides income for forest owners and their sons, who have no land rights but work in the production and draw a salary. The *ejido* expects to have a permit for logging and to operate its own sawmill in the near future. There are also regular opportunities for training in a variety of areas, from governance to financial management, and for exchanges with forest communities in other parts of Mexico. Relations with research centers and a neighboring private reserve have also provided opportunities to learn MRV technologies and earn further income.

While all these activities appear to be very positive experiences, the exceptional circumstances in which San Agustín finds itself are sometimes not emphasized. The almost unique combination of social capital, legitimacy and common interests around a shared resource has coalesced to ensure effective local governance and fairly equitable benefit sharing, but it is questionable to what extent the formula is replicable in the region as a whole.

generating activities in the region. As CONAFOR-PES program rules have changed, there have been more opportunities for extending benefits, especially salaries (see Box 10). Nonetheless, it is important to understand that internal *ejido* logics seldom foster truly equitable outcomes. The comment of an *ejidatario* in Mapastepec summed up the unequal relationship between rights holders and non-rights holders: "The *avecindados* do not have lands or rights. They only possess the patios of their homes. So we *ejidatarios* help them out, as long as they behave."

In our interviews, we identified four types of benefit-sharing arrangements in the context of *ejidos* receiving CONAFOR-PES: (i) The payments were distributed exclusively among rights holders with minimal questioning of the current *status quo* by those excluded from the payments. (ii) The payments were distributed exclusively among rights holders, but this provoked conflict with non-rights holders, which on occasions led to a recalibration of benefit-sharing arrangements. (iii) The PES generated sufficient co-benefits to satisfy any potential demands from non-rights holders. (iv). All monetary PES are placed in a fund to be administered by the *ejido* assembly in benefit of all.

In the first type, the current agrarian rights structure was simply considered legitimate by rights holders, who have a monopoly on the decision-making process, although it was argued by some interviewees, who defended this arrangement, that the money was given exclusively to family heads so that they could distribute part of the money among their children (at their discretion). In one interview, an *ejidatario* argued that he had checked the question of benefit-sharing arrangements with CONAFOR, and this institution had confirmed that the money was only for *ejidatarios*. We even found two cases in Chiapas (Ch-1 and Ch-2) where *ejidos* had originally agreed to include non-rights holders in the distribution of the payments. But on understanding the degree to which this arrangement 'diluted' the payments for each community member, the *ejido* assemblies voted to reduce or eliminate the payments made to non-*ejidatarios* (something easily achieved as only *ejidatarios* have the vote).

In the second type, the above arrangement had caused sufficient nonconformity for the non-rights holders to petition the *ejido* assembly to be included in the payments (though not necessarily on equal terms). This had different levels of success. In one *ejido*, the sons of *ejidatarios* threatened to go hunting indiscriminately in the area included in the PES program as a strategy to force their inclusion. This led to a renegotiation and a percentage of the PES monies were consequently shared with the non-rights holders. An interesting case in this sense was the *ejido* Las Nubes, in Maravilla Tenejapa (Ch-1). A previous benefit-sharing conflict had occurred in the context of a tourism project run exclusively by a group of *ejidatarios* when non-rights holders demanded a share of the benefits. This was resolved when the tourism group decided to make an annual payment to the community fund. In the case of PES, the non-rights holders made a formal petition to the *ejido* assembly to receive a percentage of the payments. This was rejected, although they only asked for 5% of what each *ejidatario* receives. One informant considered that they had even suffered reprisals (the blocking of projects for non-rights holders) as a warning to not try to 'rock the boat' in the *ejido*. These conflicts in Las Nubes partly derived from the *ejido*'s poor soils and thus the importance of non-agricultural income for livelihoods. As one interviewee (a non-rights holder) in Las Nubes argued:

> The exclusion of the sons of *ejidatarios* from PES has caused conflicts because the whole community contributes to the conservation of the PES area and everyone is subject to the same *ejido* rules and sanctions […] We all participate in community tasks, but we receive no benefit; it's unfair and affects us.

The third type includes cases where the involvement in the PES scheme creates opportunities for salaried work, maintaining firebreaks or monitoring the area, sometimes with MRV training. Since this work is often physically demanding, the *ejido* assembly is prepared to delegate this work to younger, non-rights holders, thus spreading the benefits beyond the assembly members.

The fourth type was the rarest, partly because CONAFOR-PES cash payments have set a precedent after 15 years. As a consultant working on MRV in the Lacandon Forest in Chiapas explained the question about REDD+ is always, "How much are they going to give us and when?" This interviewee interpreted this as a consequence of the previous state governor's version of REDD+ (mentioned in Chapter 5), which was simply cash payments going directly to communal landowners with no conditions. In this case, rather than asking when will REDD+ arrive, people are now were asking where did REDD+ go. Although, technically, all *ejido* assemblies could use the CONAFOR payments for investment in community infrastructure, equipment and capacity building, this seldom happened. One example was the *ejido* Nueva Palestina, in Angel Albino Corzo (Ch-2), where an *ejido* with poor infrastructure, and many *ejidatarios*, decided to avoid quarreling over individual allocations and dedicate the entirety of PES funds to improving *ejido* infrastructure (assembly building, roads, etc.). Another notable exception was the way in which the CONAFOR matching-funds scheme was managed by TNC in the Cono Sur region of Yucatán (see Box 10).

6.3.3 PES outcomes and equity

As the federal PES scheme grafts itself onto the existing *ejido* system/property regime, from an 'equity framework' point of view, all the major decisions have already been taken before the PES scheme has even been implemented (we refer to discussions about the scale, the goals and local parameters for equity in McDermott *et al.* 2013: 420). The *ejido* structure has already decided the 'scale' and 'targets' of the PES scheme by receiving the payment at an *ejido* scale and distributing the money to the recognized rights holders. The parameters of equity are expressed by sharing benefits equally among rights holders; that is, 'equality' is preferred over 'equity'. In a sense, the 'goal' of equity is not really considered at an *ejido* or policy level, because the existing *ejido* hierarchies are largely unquestioned and CONAFOR-PES does not address these issues in its design (it is more concerned with efficiency and efficacy).

If we apply the three dimensions of equity identified by McDermott *et al.* (2013) – distributive, procedural and contextual – to the *ejido* case, it falls considerably short of optimum conditions. Regarding distributive equity, there is seldom an explicit reflection at the *ejido* level on the impact of PES implementation and the "distribution of costs, risks and benefits" (McDermott *et al.* 2013: 421). Procedural equity also follows *ejido* lines, with rights holders having the final word, although *ejido* assemblies vary in their inclusivity, at least at the discussion stage. Thus, the ideal state of affairs – the "recognition of all parties and affirmative efforts to ensure their inclusion and representation" (*ibid.*) – is very rare in an *ejido*. With regards to contextual equity – the background arrangement regarding equity – the *ejido* is clearly an uneven playing field and PES can reinforce existing inequalities in *ejidos.*

At the same time, and however we might feel about these inequities, current benefit sharing around PES in *ejidos* is generally perceived as 'legitimate' inasmuch that it is often tolerated by the excluded. As we have mentioned, the existing internal *ejido* hierarchy is often 'naturalized' by all its members. According to our interviews, the exceptions seem to depend on various factors, including the field of opportunities available to non-rights holders and the extent to which the exclusion from some of these opportunities inhibits livelihoods on the implementation of PES. In these cases, PES schemes can serve to aggravate existing tensions by excluding sectors from cash benefits and enforcing new restrictions on access to forest lands that can affect livelihoods (e.g. prohibitions on hunting and access to firewood and timber).

6.4 Other actors and PES

It is also important to consider the role played by other actors in determining the ways in which PES and other components of the Special Programs are delivered on the ground, beyond CONAFOR

guidelines and the specificities of each *ejido*. First, there is the forestry technician, an independent consultant whose role is to effectively promote and administer CONAFOR programs in eligible regions and maintain the link between CONAFOR and the programs' beneficiaries. Inexorably linked to this figure are the ARS, which were created to promote forest management beyond the *ejido* scale and are linked to the different Forest Management Units (UMAFOR) across the country. The idea, still not implemented in full in Chiapas and Yucatán, is that every UMAFOR would have at least one corresponding ARS.

Although CONAFOR maintains a list of approved forest technicians, and the selection criteria have become stricter in the last few years, mistrust of these consultants' technical capacities and ethical standards was commonplace in our interviews. Even an official at CONAFOR recognized that these forest technicians often do the "minimum necessary to access the funds" and that they turn into "administrators, not true technicians that advise on forest management in the communities". An NGO director in Maravilla Tenejapa (Ch-1) considered these technicians to be opaque figures that often had "shady" relationships with the *ejidos* and used their personal and professional networks (in CONAFOR) to access funds and favors. What is certain, as someone in the CCMSS commented, is that these technicians frequently become key brokers for certain regions, defining investments, giving a certain coherence to planning processes and shaping the characteristics of local organization around forest management. But given their freedom of action and their access to influential networks within the forestry sector, they can effectively bypass or ignore efforts from above to institute a more territorial and integral approach to forestry interventions by selecting only the 'low-hanging fruit' from the available programs (such as those with fewer bureaucratic requirements and which generate more earnings for the technician in relation to the effort required). A consultant in Yucatán, who specializes in governance, concluded that the forestry technicians were a "necessary evil" given that at least CONAFOR still provided some technical assistance (unlike the agricultural ministry) and that despite their "mercenary" attitude and economic interests, they often determined project success or failure.

In interviews with *ejido* members, forest technicians were either seen as important authority figures and benefactors who had channeled resources to the *ejido* by facilitating access to CONAFOR funds or, in the case of negative experiences, as self-interested and dishonest figures who preyed on *ejidos*' ignorance and needs. One interviewee in Benemérito de Las Américas (Ch-3) considered that these independent technicians only attended to regions with more earning potential, not offering their services, for example, in municipalities with less potential for PES. In the case of a forest technician working with the majority of *ejidos* in the municipality of Maravilla Tenejapa (Ch-1), disagreements with CONABIO, the institution supposedly in charge of the implementation of the Lacandon Forest Special Program (PESL) had led him to criticize this federal institution in *ejido* assembly meetings and to avoid direct communication with them, thus precluding collaboration. The technician in question felt no need to report his actions to this institution, expressing confidence in his own vision for the region and the support he had from the *ejidos* with whom he works.

There are limits to the influence of these technicians and they can, of course, be dismissed by *ejidos* or ARS and, in theory, they can be eliminated from CONAFOR's list of approved technicians if any misconduct is proven. In Yucatán, some *ejido* members told us how it had been necessary to replace dishonest, inefficient or expensive technicians, or in one case, how different groups in the same *ejido* had tried to play technicians off of each other to get a better deal. So, the effective privatization of technical assistance in the forestry arena has had mixed results. On the one hand, there is (in theory) more choice and forest owners can look to work with the technician that suits them best, but on the other hand there can be a lack of accountability and transparency associated with these actors, and as relatively free agents, from the point of view of the government, they can be difficult to 'bring on board' in the context of governance innovations.

As mentioned, a second actor related to PES implementation is the ARS. These associations ideally facilitate a scaling up of forest governance beyond the *ejido* or property level and function as points

of contact between government institutions and regional forest realities. However, the ARS seldom represent the culmination of grassroots organization, although there have been differing levels of appropriation in different cases. As membership of these associations is practically an obligation in order to benefit from CONAFOR programs, some associations have been created – sometimes by forestry technicians themselves – as a means of accumulating more 'points' in applications for CONAFOR projects (association membership is one of the criteria considered).

Some key informants were therefore skeptical of these associations' capacity to decentralize the delivery of forest policy and their legitimacy as truly representative organizations in the different UMAFOR. A consultant in Yucatán considered that ARS were often just organizations on paper, and that few were actually working as true mediators between the *ejidos* and the forestry technicians. Even staff at CONAFOR recognized that in some cases these associations had been created as platforms for personal political ambitions, or had assumed a party-political identity. For this reason, the turnover of these associations has been relatively swift and there are now fewer of them in Chiapas than 5 years ago.

Nonetheless, seen from another angle, despite the 'official' origin of these organizations and the degrees of co-option present, these ARS can play some role in representing regional interests around forestry. As recognized 'forest subjects' and CONAFOR beneficiaries, their representatives gain access to new spaces, such as forestry expos, and begin to build networks in the forestry world. In the case of Chiapas, six of these associations have come together under the umbrella organization *Bosques y Gobernanza* (Forests and Governance) in an attempt to scale up their influence and strengthen their efficacy as a lobbying group in the forest policy field. This organization, which represents around two-thirds of forestry associations in the state of Chiapas, evolved from a series of state forestry congresses that began in 2014 to bring together forestry association members, academics, consultants, forestry technicians and, to a lesser extent, federal and state government agencies to debate the challenges facing forestry in Chiapas in a context of climate change and rural poverty.[51] In the 2016 edition of this state congress, the cuts to the federal environment and forestry sectors lent a more despondent atmosphere to the event, but it has become an important space for discussion, networking and lobbying.

In this way, forestry technicians, *ejidos* and ARS interact on a playing field circumscribed by CONAFOR guidelines and financial resources. By implementing a 'mix' of programs determined by budget lines and available resources, forestry technicians have become important regional actors for determining local management practices, governance arrangements and even land use. The balance of power between the technicians, associations and *ejido* assemblies varies from region to region, but they all operate within a neo-corporatist structure and logic, competing to access centrally defined programs, without contesting policy content itself. As such, this represents a form of governance, formal and informal, that operates at the margins of the intended nested approach, promoted by the Special Programs and taken up in the REDD+ early action areas.

6.5 Conclusions

The under-minister for forests in Chiapas commented that "REDD+ isn't about addressing drivers directly, but about incorporating actors into processes." This identifies a key challenge currently facing REDD+. So far REDD+ projects have been small-scale attempts at developing best practices in selected areas with relatively small budgets (in comparison to agricultural programs, for example). Many of the platforms for discussing and determining the future of REDD+ have been dominated by

51 This annual event has also served to include Chiapas within the National Strategy for Sustainable Forest Management for Increased Production (*Estrategia Nacional de Incremento a la Producción Sustentable*, ENAIPROS) and to sign MoUs with different sectors, such as SECAM and national and state universities.

environmental NGOs and the government environmental sector. All too often, the agricultural sector and forest owners are absent from these processes. While there are ever more spaces in which to participate and express opinions on REDD+, they are often non-binding, have no budget and can serve to legitimize the *status quo*. Rather than permanent guarantees of multistakeholder decision-making processes, in practice these spaces are dependent on political will and individual commitment. Despite a national consultation on REDD+ and, more recently, the development of safeguards systems at a state and national level, the democratic deficit in Mexico has a tendency to compromise these efforts, with limited institutional abilities and forms of communicating policy to the general population.

Nonetheless, given the experience with CONAFOR-PES, it is clear that *ejido* governance can be harnessed and in certain circumstances improved by these programs. Despite equity challenges and the exclusion of some sectors of the population, *ejidos* enjoy relatively high levels of legitimacy. We have shown some of the different ways *ejidos* have dealt with benefit-sharing around PES. This is why it seems surprising that the agrarian issue, as a benefit-sharing challenge, has not really been addressed in the context of REDD+ beyond celebrating isolated cases of 'successful' *ejidos* well-endowed with forest. While the agrarian question in Mexico is undoubtedly a controversial issue and ideologically problematic for the current administration, it is difficult to see how REDD+ will come to fruition without the involvement and support of the social property sector. As an interviewee at Pronatura in Yucatán commented: "REDD+ discussions are mistakenly going from the general to the particular, but it should be the other way around, starting with the forest dweller and his forest. But since the commitments made on the international scene will be measured on a national level, the *ejidatario* is left out of the debate."

The challenge is of course to scale up *ejido* governance, something that has been achieved by coffee cooperatives in the Sierra Madre and, in a few cases, by ARS. But strong, independent, grassroots organizations are few on the ground. *Ejido* unions, an organizational form that groups together *ejidos* around productive interests, can lobby for their members, but they often become agents for government programs and embroiled in corruption and debt. A history of clientelism and paternalism has weakened organizational processes and there are few legitimate interlocuters with whom to engage that can represent rural producers. As we have seen, the outsourcing of technical expertise may be intended to improve efficiency, but it can also produce perverse incentives that can upset even the best-designed policies. In practice, the role of forestry technicians has been key as these actors effectively define local forestry interventions within the context of CONAFOR rules and available funding, with little interference from other governance levels.

7 Conclusions

This paper has attempted to incorporate information and opinions about a very wide range of phenomena, offering a multilevel analysis of governance around land use and efforts to promote LED capable of challenging current, 'business-as-usual' development trajectories. Land-use change is a complex area of study in itself and the diverse understandings of deforestation and forest degradation and its drivers were evident in the interviews we carried out. This diversity of opinion often responded to different sectoral visions, different scalar understandings of land-use change and distinct understandings of territorial vocation (or the 'ideal' scenario).

We have used the concept of multilevel governance to evaluate the extent or absence of coordinated actions between different levels and sectors for a common end. We found many examples of efforts to improve multilevel governance around common problems, but also many inertias that inhibited turning cross-sector planning processes into reality in the field. A centralized approach to policy design and delivery continues to dominate in Mexico, despite much lip service to decentralization. This is a historical problem that LED initiatives and REDD+ have not been able to significantly shift and is expressed in many governance spheres. Furthermore, sectoral cultures in government institutions continue to promote particular visions for rural areas that are often at odds with each other and different work styles that do not always permit collaboration with other actors. As we have seen, some institutions are reluctant to open themselves up in the context of cross-sector collaborations, for fear of scrutiny or questioning. At the same time, we have observed how emergency situations can create sufficient incentives to collaborate, sometimes producing long-lasting multilevel governance arrangements.

In Chapter 3, we saw that deforestation and forest degradation continues in the two states considered in this study, and that much of this deforestation and forest degradation is technically illegal. The drivers of this process continue to be agriculture and extensive cattle ranching and to a lesser degree wildfires and illegal logging. A frequent comment was that government programs aimed at curbing this deforestation were only partially successful at addressing the actual drivers causing the deforestation, because of their poor design, the politicization of programs (e.g. PES) or sudden cuts to funding (according to a senior CONAFOR employee, the budget for CONAFOR's PES program was cut by almost 90% in 2017, since our research ended). This does not bode well given Mexico's commitment to achieving zero net deforestation by 2030 and reveals that 'business-as-usual' largely continues to be unaffected by LED initiatives in Chiapas and Yucatán.

In Chapter 4, we saw that the federal government and *ejidos* are the 'levels' of government considered to have most influence over land-use change and forests. This reflects limited decentralization in these areas and the fact that the federal government retains most of the agricultural and environmental budget. This meant that it was this level of government most associated with both negative and positive land-use change through agricultural subsidy programs and PES. At the same time, many *ejidos* make the day-to-day decisions on land use and forest management. The influence of state governments in agricultural and environment policies differed in Chiapas and Yucatán. In Chiapas, the state government environmental sector is underfunded and understaffed, and actions and collaborations are hindered by low capacities and lack of transparency. Municipal governments were largely absent from decision making around land use and forests, focusing energies more on urban infrastructure projects and attracting funding from higher levels of government. In any case, short 3-year electoral cycles (with no re-election) often lead to short-term visions for municipalities, that inhibit the development of territorial development strategies.

Partly because of this uneven distribution of powers and budgets among different levels of government, multilevel collaboration has been difficult, and most interviewees considered the decentralization of natural resource governance to have been limited in practice. Inter-sectoral collaboration was also seen as challenging, in both a practical sense – different institutions have different internal rules and work cycles – and in the fundamental sense that different sectors' development agendas were often not compatible.

In Chapter 5, we looked at initiatives and collaborations for change, reviewing a number of experiences promoted by different actors, from government institutions and CSOs, as well as those emerging from markets and from crisis situations. We returned to the question posed at the beginning of this paper, as to whether LED options were gaining traction and altering power relations and governance around natural resource use and benefit sharing, and whether REDD+ was changing anything in the two states we studied. It is difficult to give a simple answer to these questions as change is slow, piecemeal and under constant threat of being reversed.

One problem has been the difficulty of communicating the REDD+ message beyond the environmental sector and the urgent need to bring the agricultural ministries – federal and state – into the REDD+ process (and debate). Perhaps one of the underlying tensions that characterizes the REDD+ process in Mexico is that a federal (decentralized) institution – CONAFOR – with a sectoral mandate (forestry) has been charged with implementing a program largely designed by civil society actors, whose vision of sustainable rural development has been informed by years of experience in territorially focused, LED.

REDD+ may eventually alter the subordinate relationship that states experience vis-à-vis the federal government, especially if state governments receive independent funding for LED projects. International coalitions of subnational actors, such as the GCF, and bilateral agreements between subnational jurisdictions, such as Chiapas and California, may provide opportunities for state governments. Although the federal level has been reluctant to strengthen subnational capacities in this aspect, some suggest that states should simply legislate changes that allow state governments to offer carbon credits on the international market. However, other interviewees considered state governments to be currently ill-equipped to administer REDD+ funds.

A variety of NGOs were active in promoting LED alternatives in both states, and in the context of REDD+ implementation, these NGOs have taken on a number of roles previously associated with the government, such as technical assistance and policy development. They are frequently supported by international funding that promotes international climate change agendas, presenting possible problems relating to legitimacy, representation and transparency. Certain grassroots organizations questioned the right – and the desirability – of environmental NGOs acting as mediators between forest owners and the government in the context of REDD+.

We also identified a number of LED initiatives and multilevel governance innovations that often predated REDD+ early actions but have been strengthened by REDD+ financing. The examples we gave were agroforestry around shade coffee, pine resin extraction and honey production. In some cases, a shock to the socio-ecological system, such as wildfires, hurricanes or crop disease, proved to be the catalyst for improved collaboration around land management and forests. The multilevel governance evident around fire management in parts of Chiapas was particularly impressive in this respect.

In Chapter 6 we considered questions of participation and benefit sharing with regard to outcomes, legitimacy and equity for rural inhabitants. The current political climate in Mexico does not lend government actions much legitimacy and indeed expectations were low, but the rural crisis and widespread poverty has created a dependency on government subsidies, whether they are for education, agricultural production or forest conservation. In this respect many rural inhabitants

considered government programs to be 'legitimate' (and part of the 'social contract'). But grassroots organizations in rural areas are also in crisis, and we came across few strong, independent producer organizations, beyond the coffee cooperatives in the Sierra Madre. This has led to problems of how to represent and include the rural population in decision making, and the REDD+ process has not managed to engage with many rural actors beyond the ARS. For the most part, participatory councils and other platforms for environmental governance and REDD+ have not been able to act as legitimate counterweights to centralized government decision making, particularly at the subnational level.

One hypothesis in this study is that the revaluing of forests and the emphasis on good governance in the context of REDD+ implementation has in some cases led to a revalidation and strengthening of local agrarian institutions. Despite their enormous heterogeneity, *ejidos* and communities do represent a space for local decision making and most CONAFOR and NGO projects are directed at *ejidos* and communities. They have proved themselves to be more robust in the southern parts of the country, characterized by higher indigenous populations, and their efficacy as governance institutions is dependent on a number of local variables such as the size of the land grant and population density, to questions of participation, internal institutional dynamics and generational change.

We also saw how the *ejido* served as the principal unquestioned template through which local benefit-sharing arrangements have been constructed around CONAFOR's PES program. CONAFOR pays PES directly to agrarian authorities, who generally distribute the monies equally among rights holders. This practice comes at the expense of non-rights holders – with and without land – who are excluded from such benefits and decision-making processes in general. The *ejido* sector in Mexico is usually currently characterized by a population with ever more differentiated rights to land and forest. More equity-based interpretations of the PES program could mitigate this situation somewhat. For example, payments could be managed collectively for improved infrastructure or used to generate employment for non-rights holders. This might avoid migration and achieve a broader distribution of benefits. This has happened in some cases with CONAFOR's matching-funds PES program (*Fondos Concurrentes*) and occasionally on the initiative of the *ejidos* themselves.

But despite this, the agrarian dimension – as a territorial question and a benefit-sharing challenge – has received scant attention from the government in the context of REDD+ design and implementation. This reflects a wider abandonment of the social property sector – *ejidos* and communities – but also is indicative of the fact that REDD+ has been constructed from the top down. Formally in Mexico, common property forest represents around two-thirds of the nation's forests and, as such, its contribution to reducing emissions will be central to the success of REDD+.

On the international stage, Mexico has been proactive with its national climate change commitments and formally speaking, REDD+ is advancing in Mexico. But most interviewees were in little doubt that federal REDD+ was losing momentum because of changes in government priorities and severe cuts to CONAFOR's budget. The current absence of leadership around REDD+ has meant that key aspects remain ambiguous, such as the character of the APDTs, benefit sharing, MRV and financing. The IRE was submitted to the FCPF in early 2016, but was not approved until late 2017, in part due to a legal problem around CONAFOR's rights to sell carbon credits to the FCPF. The manner in which the investment plans were prepared at the end of 2015 for the regions in the five states included in the IRE does not bode particularly well for the future of REDD+. In Chiapas, difficulties arose between CONAFOR and the state environmental ministry in the definition of the regions to be included. On top of this, an unrealistic time-frame was given to the consultants to develop the plans and subsequently there was limited coordination or even communication between the different consultants, combined with varying degrees of local participation. There is a risk that REDD+ is being pushed through to comply with international requirements, but that the tricky issues around rights, tenure and benefit sharing are being circumvented.

Undoubtedly, the implementation of REDD+ early actions initiated a very interesting conversation among multiple actors with power and influence over land and forests in Mexico. Much thought and energy has been put into the design of policies, strategies and programs that might help build a foundation for future LED. Coalitions for change exist and have set important precedents, changing land-use trajectories and improving governance structures. However, they are often fragile, limited to PAs, and funding dependent. A truly broad vision for REDD+ – as expressed in the national strategy – will depend on changes in the political sphere, but this process can be slow. There is formal progress around REDD+, with ambitious commitments to tackle deforestation and forest degradation, legal frameworks are being gradually harmonized and different sectors are sitting at the same table more frequently. But the government's economic program and structural reforms to the energy sector point to an agenda that prioritizes extractive activities over environmental concerns and is thus not ultimately compatible with REDD+ goals.

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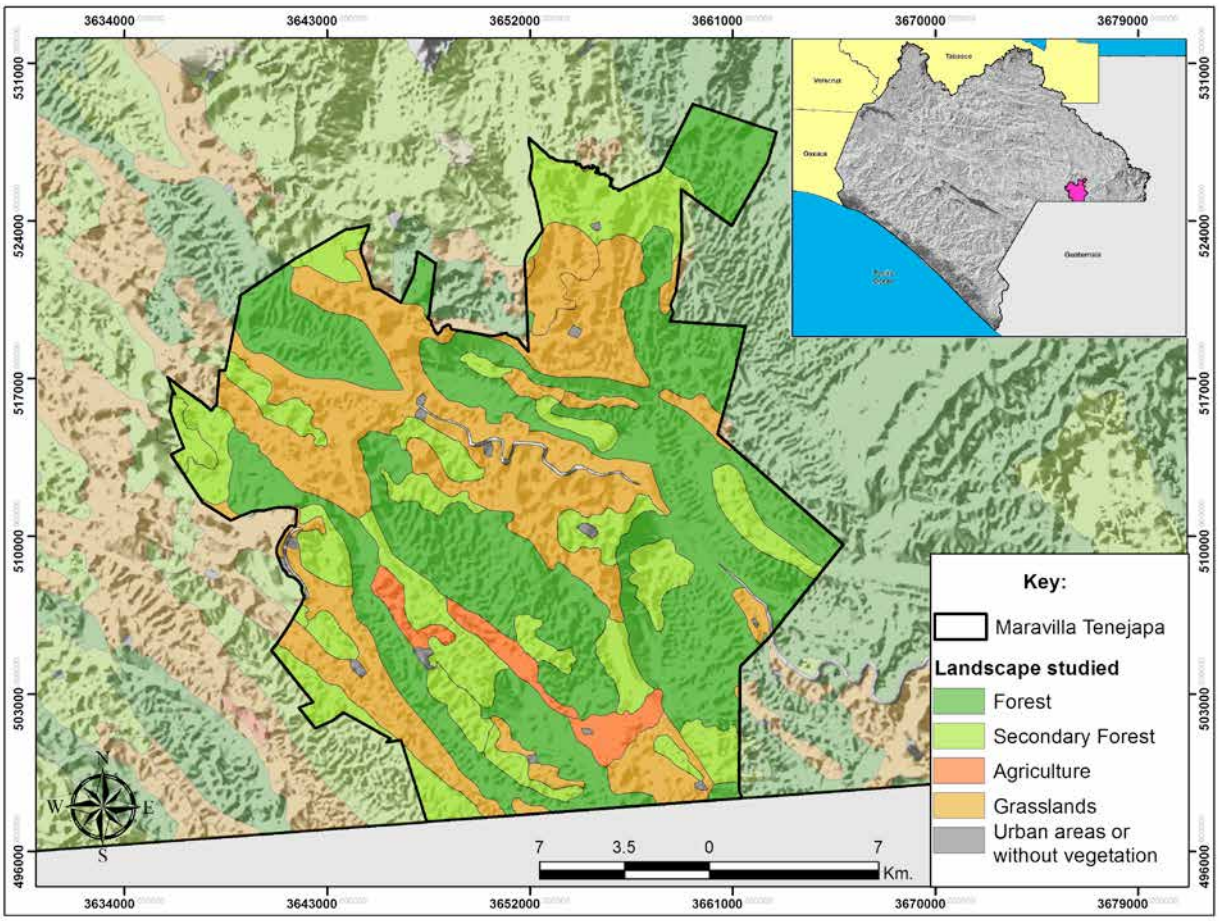
Annex A. Site reports

Ch-1: Municipality of Maravilla Tenejapa (Chiapas) 'Decreasing' emissions site

Maravilla Tenejapa is a recently created municipality that has an area of 411 km^2 and a population of around 12,000 people, half of whom speak an indigenous language and over half of whom are considered to live in extreme poverty (CONEVAL 2017). This municipality forms part of the *Selva Lacandona* region of eastern Chiapas that borders Guatemala. The ecosystem is tropical rainforest with mountainous terrain (average altitude 400 m asl) and has important river systems. This municipality was created in 1999 out parts of two larger municipalities (Ocosingo and Las Margaritas) and initially promised a more efficient, locally responsive administration. There are 27 recognized *ejidos* (and two 'irregular' communities), which make up more than 90% of the territory. The northwestern part of the municipality is included in the sustainable use zone of the Montes Azules Biosphere Reserve.

This region was colonized in the 1970s by mainly indigenous population from other parts of Chiapas who fell parts of the forest in order to establish their *milpas* along with coffee plantations under managed shade (farming the land was a condition for *ejido* land grants). Cattle ranching began in



Map A.1 Municipality of Maravilla Tenejapa (Source: INEGI 2013)

the 1980s but expanded considerably after the collapse of coffee prices in 1995. However, there are natural limits to cattle ranching as there are no accessible water sources for cattle in the south of the municipality. Here *ejidos* have relied more on coffee and bananas, along with pineapple, sugarcane and cacao. Cattle ranching has been recently buoyed up by favorable prices, whereas cacao and coffee cultivation have been severely affected by fungal infections and price fluctuations.

The federal environmental sector has an important institutional presence in Maravilla Tenejapa and the municipality has been part of a regional 'laboratory' for developing inter-sectoral collaboration and a territorial development approach. Since 2007, CONABIO has been promoting LED activities in the region with financing from SAGARPA and implemented by an *Agencia de Desarrollo Local*, in this case a local NGO with a history of interventions in the municipality. Nonetheless, SAGARPA continues to apply its conventional programs in the municipality, such as subsidies for maize cultivation (ProAgro) and cattle ranching (PROGAN).

In 2010, CONABIO took on the role of APDT to coordinate CONAFOR's *Special Program for the Lacandon region.* Three-quarters of the *ejidos* (and almost half the area of the municipality, 19,662 ha) have benefited from PES in the last 5 years. In 2009, an external forestry consultant established the *Asociación de Silvicultores Región Miramar* (ASIRMI) in the municipality, specifically to access CONAFOR-PES funding. ASIRMI currently has 23 member *ejidos* in the municipality and has generated interest among the inhabitants in forestry management, strengthened internal *ejido* governance in some cases and regalvanized *ejido* interaction through the creation of a system of representatives, common projects and renewed radio contact. In practice, ASIRMI is subject to CONAFOR norms and regulations but operates largely independently of CONABIO, the APDT in the region.

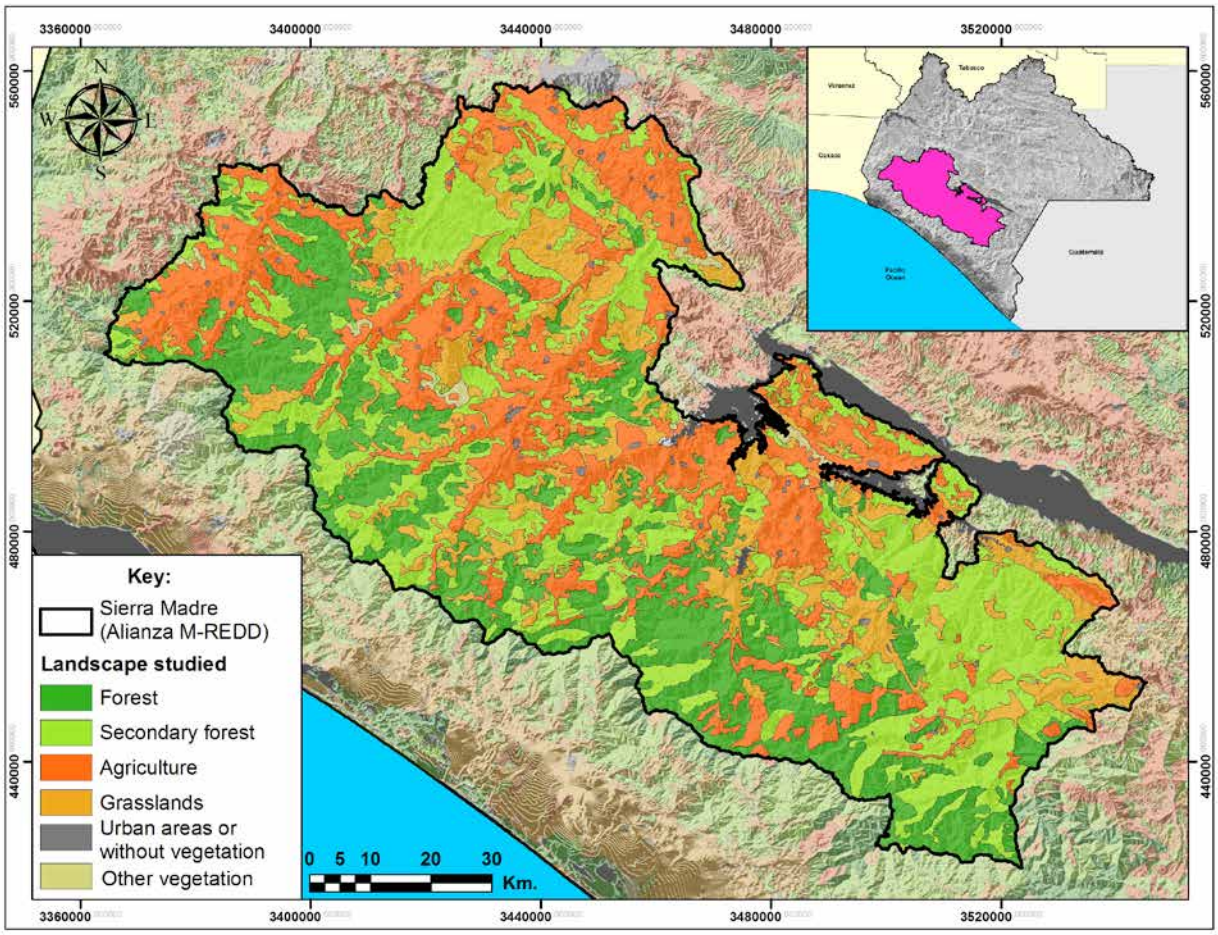
Most informants were clear that continued conservation was dependent on the continuation of PES programs, which were considered particularly attractive in the context of the current coffee rust crisis. Although very few informants had heard of REDD+ (the national consultation on the REDD+ National Strategy document had only just begun), there was experience of REDD+ activities in agroforestry, the intensification of cattle ranching, PES schemes, ecotourism, reforestation and community vigilance and monitoring.

Ch-2: Inland slopes of the Sierra Madre (Chiapas) 'Decreasing' emissions site

The study site covers the central region of the inland slopes of the Chiapas Sierra Madre and includes parts of the municipalities of Villaflores, Villacorzo, Ángel Albino Corzo and La Concordia, which are considered to have medium to very high marginalization (INEGI 2011). These four municipalities cover an area of 7789 km² with a total population of 243,775 inhabitants (INEGI 2011), although the study site focuses on the mountainous part of this region, which is less extensive and less densely populated.

This region is considered to be a site of decreasing emissions due to the confluence of a number of conservation and sustainable development initiatives promoted by federal and state government (e.g. PAs along the watershed divide of the Sierra Madre), municipal government (e.g. fire management), as well as productive organizations (e.g. coffee and camedor palm cooperatives) and private companies (e.g. tree resin extraction). This site is the priority attention area of REDD+ readiness projects promoted by the *Alianza México-REDD+* in Chiapas.

The Chiapas Sierra Madre is a mountainous range which extends for 250 km, parallel to the Chiapas Pacific coast and is a site of international significance for biodiversity conservation, with tropical deciduous, pine and cloud forests, which provide key environmental services, as well as maintaining



Map A.2 Inland slopes of the Chiapas Sierra Madre (Source: INEGI 2013)

significant carbon stocks. The particularly high precipitation rates provide much of the water that feeds the Grijalva river basin and a system of dams used for agriculture and hydroelectric power. The declaration of a chain of federal reserves along the mountain range reflect the importance of the region. This site includes a variety of climates, with altitudes ranging from 450 to 2450 masl.

The lower altitudes of this region have been important agriculturally since the 1960s (once known as 'the granary of the south'). However, with the reduction of government subsidies for maize production in the context of NAFTA, government programs for cattle ranching emerged. This continues to expand, benefiting from a boom in recent years which has pushed pastures toward higher regions. At higher altitudes, coffee estates were established more than a century ago by foreign entrepreneurs who migrated from Guatemala. These plantations determined the particular landscape characteristic of the higher altitudes, since migrant workers from other parts of Chiapas (mainly indigenous people from the Highlands) established communities on the outer limits of the estates, sowing their own coffee. In the 1970s and 1980s land reform was eventually carried out creating dozens of *ejidos*, although many small properties remain irregular to this day, occupying national lands. Land tenure is thus a complex mosaic of private property, *ejidos*, national lands and irregular communities.

After the 1989 coffee crisis, coffee production in the region recovered at the turn of the century through the interventions of environmental NGOs and CONANP, who saw the promotion of organic and fair-trade coffee as a means to stabilize the agricultural frontier. Around 2005, many of these same actors began promoting understorey plantations of camedor palm (*Chamaedorea quetzalteca*), as well as strengthening regional organization for the commercialization of the product. CONAFOR-PES programs have provided additional value to forest areas, yet there are limited forest management

permits, despite suitability for forestry activity. In recent years, pine-tree resin has been commercially collected. A Mexican company has become associated with 14 *ejidos* in the region and, with the support of CONAFOR subsidies, currently has 400 ha in production.

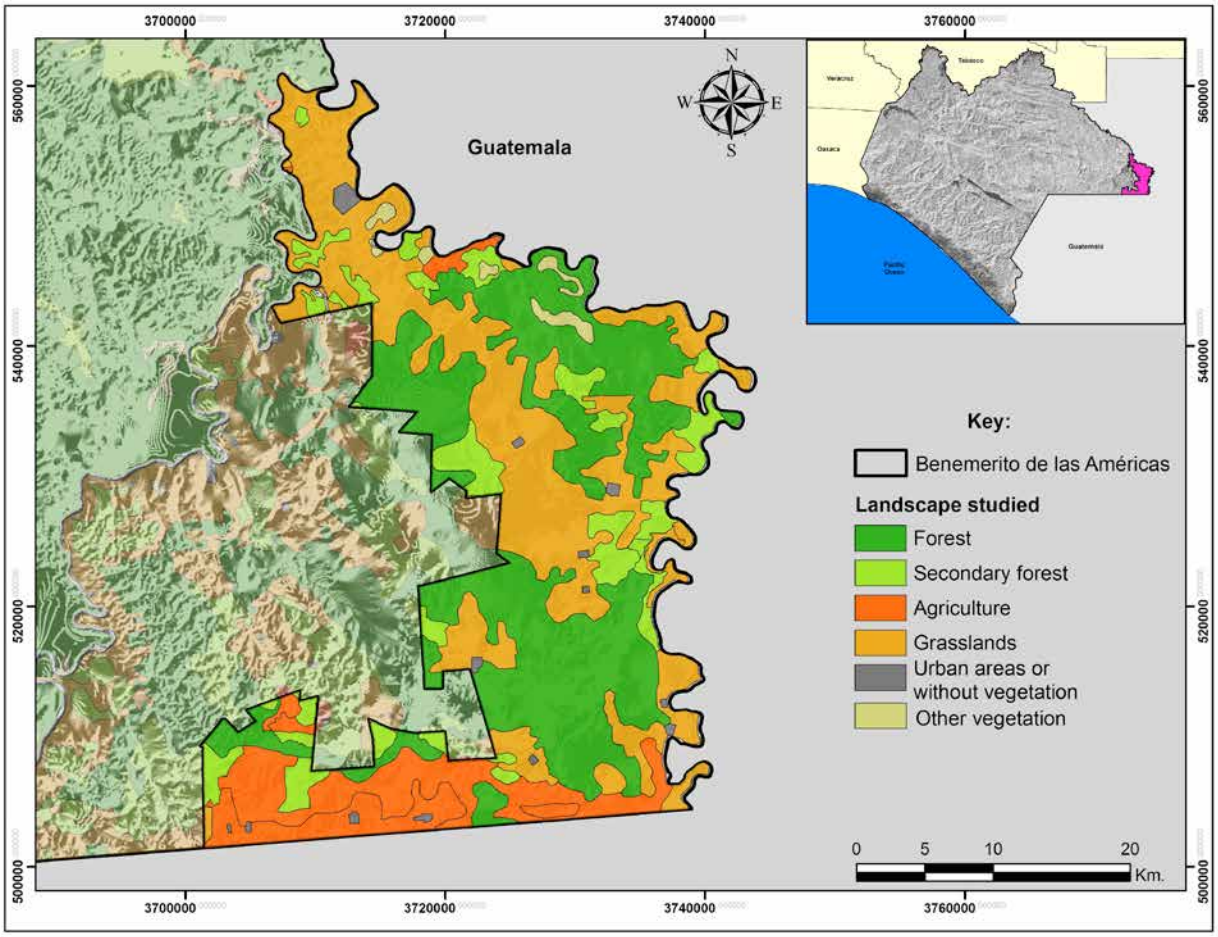
The *Alianza México-REDD+* sought to bring together the interventions of six Chiapas-based NGOs promoting a focus on climate efficiency. An example of this collaboration is improved fire management. According to CONAFOR, this region has the highest incidence of forest fires in Chiapas, but recent interinstitutional coordination has meant significant reductions in affected areas. Current emphasis is being placed on prescribed fires or controlled burning (the application of fire under specified weather conditions that help restore health to fire-adapted environments), which reduces the risk of catastrophic wildfire caused by excessive fuel build-up. There are a number of production organizations in the region, from fair-trade coffee cooperatives to women's artisan organizations to ARS. State government programs are limited to commercial agricultural subsidies. With the current coffee rust epidemic (caused by the fungus *Hemileia vastatrix*), the Chiapas government has declared a "Crusade against Rust", distributing fungicides and over 50 million plants of hypothetically rust-resistant varieties to renew plantations.

Municipalities have played an important role in some key projects, such as fire management and watershed governance (eg. the Cuxtepeques Watershed Council, managed by the La Concordia municipality). In these cases, spaces for effective multilevel governance have been appropriated by municipal governments, which generally lack funds but have the local knowledge and contacts to liaise with communities and institutions higher up the chain of command. The municipality has had the guidance of a technical team, which ensures continuity beyond the municipal government's 3-year term, facilitating monitoring and evaluation and project follow-up.

Ch-3: Municipality of Benemérito de Las Américas (Chiapas) 'Increasing' emissions site

Benemérito de Las Américas is a recently created municipality located in the Lacandon Forest region, with an area of 1075 km² and a population of around 18,000 people of very diverse origins (around half the population are from states other than Chiapas). Around 30% of the population is indigenous and 41% are considered to live in extreme poverty (CONEVAL 2017). The land is undulating, with an average altitude of 150 masl, and the most fertile soils are near the rivers that run along the north and east of the municipality. The original vegetation was tropical rainforest, but now around half the municipality is covered with primary and secondary forest, a third is pastureland and the rest agricultural (Covaleda *et al.* 2014: 84). The municipality is 100% *ejido* property and there are 11 *ejidos,* the largest of which is the *ejido* Benemérito de Las Américas, with 36,000 ha and 761 *ejido* members (and 74 *posesionarios*).

The colonization of this region was promoted by the government, which was interested in securing this frontier region in the context of the conflict in neighboring Guatemala in the 1980s. The peasant farmers initially felled the forest to grow maize and beans for subsistence, and chili and pumpkin seeds (*chigua*) for the market. In the *ejido* of Benemérito they were given 50 ha per family; 20 ha for agriculture and 30 ha for cattle ranching. These relatively large family plots have had a consequent effect on LUC patterns. Cattle ranching has been the backbone of the regional economy since the 1980s and the principal historic driver of deforestation. Other activities have also been promoted, such cacao, cardamom and rubber plantations, but with little long-term success. In 1989, the government imposed a forestry ban, which led to illegal cutting and resulted in forest fires and regular conflicts with the government over resource use, leading to the formation of more radical social movements in the region (e.g. *Movimiento Campesino Regional Independiente*, MOCRI). In the context of the Zapatista uprising, the forestry ban was lifted in 1994, cattle ranching was financed again and permits were granted to cut 54,000 m^3 of timber.



Map A.3 Municipality of Benemérito de Las Américas (Source: INEGI 2013)

At present, cattle ranching remains important, but the activity is changing character. Permanent herds are decreasing as the rapid buying and selling of cattle becomes more important. Benemérito is the point of entry for large numbers of Central American cattle, some of it stolen according to informants. Local estimates put the number of cattle leaving Benemérito at around 50,000 heads a month. A small number of ranchers dominate the business, fattening the imported cattle for a few months on their ranches before selling it on. Local informants hint at probable links between these activities and drug trafficking, the cattle sometimes being used to transport narcotics to the north of the country. According to Covaleda *et al.* (2014), the dominant emerging activity that is currently determining LUC is oil palm plantations, which caused the removal of over 10,000 ha of secondary vegetation in the period 2007-2012 (2014:116). In 2009, support was resumed for the establishment of rubber plantations with the SAGARPA's *Trópico Húmedo* program and recently CONAFOR has begun to support rubber plantations for 7-year cycles (time needed to reach maturity). There are now around 5,000 ha of rubber plantations in Benemérito, of which 1,675 ha were in production in 2013 (SIAP 2014).

At this site, apart from the important federal actors that intervene in LUC, such as SAGARPA and CONAFOR, private companies are promoting the expansion of oil palm plantations (AGROIPSA and Palma Tica). Although they have not purchased significant areas of land in the municipality, their involvement in LUC is significant, as buyers, lenders and even political actors. AGROIPSA has recently joined the Roundtable on Sustainable Palm Oil (RSPO), yet the environmental impacts of oil palm plantations in the region continue to generate debate. Collective decision-making processes are relatively weak in *ejidos* of this region, largely because of an individualist culture and marked internal inequalities. The active organizations in this region appear to be more responses to government

program requirements and strategies for accessing loans than independent organizations, with their own vision of the territory, and are limited to a particular activity (oil palm, cattle, rubber etc.). Among our interviewees, the municipal government was perceived as marginal to LUC decisions and its role is limited to channeling state government resources, with pre-determined budgets and objectives.

Benemérito de Las Américas is included within CONAFOR's REDD+ early action areas, but in practice CONAFOR investment in the municipality is oriented more toward rubber plantations (CONAFOR does not support oil palm) and not toward PES or community forestry. This reflects a number of factors, such as limited common-use areas, the absence of forestry organizations and technicians and other land-use opportunities. High levels of violence in the municipality may have affected the availability of technical assistance.

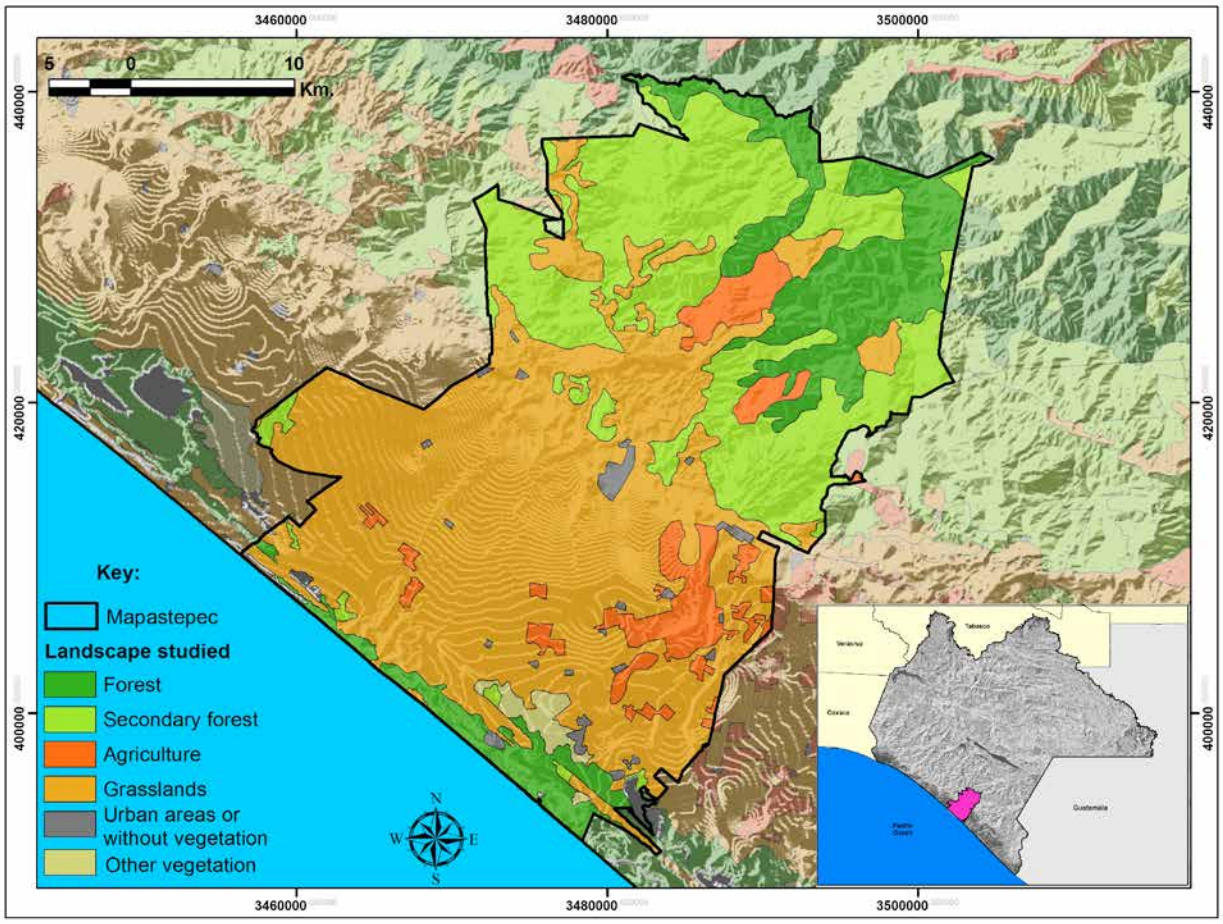
Many inhabitants envision an agro-industrial future for the region (improved infrastructure, agro-chemicals, irrigation, intensive animal rearing, etc.), while others have 'ecologized' their language and present the new plantation boom in landscape restoration terms. Informants agree that Benemérito has a potential for approximately 25,000 ha of oil palm plantations. This potential is backed by outside investments and projects for processing plants in the region. However, if the price does not improve, some producers may sell their plantations and move on. Rubber production is also set to increase rapidly in the next few years, although this process has not been accompanied by significant private investments in the region and the low prices and dependence on the Guatemalan market may discourage further expansion. Commercial agriculture plans proliferate in the region, with diverse implications for forest cover. The buying up of plots of land for commercial use (oil palm, rubber, *robusta* coffee), although only an incipient dynamic, may gradually transform the region. Regional knowledge of REDD+ was negligible, despite being considered a REDD+ early action area.

Ch- 4: Municipality of Mapastepec (Chiapas) 'Increasing' emissions site

Mapastepec is a coastal municipality of 1218 km^2 and a mainly *mestizo* population of over 43,000 inhabitants. The degree of marginalization is medium and thus below the Chiapas state average of very high marginalization (CEIEG 2014). Covaleda *et al.* (2014) identify Mapastepec as an increasing emissions site due to cattle ranching in the period from 2007 to 2012, while they also refer to an emerging tendency of deforestation due to oil palm plantations. Fieldwork confirmed the tendency of increased emissions, particularly due to cattle ranching, in a context where the oil palm boom has recently faced a bust scenario with the drop in international prices.

Steep slopes mark a quick transition from the Sierra Madre to fertile coastal plains which cover most of Mapastepec (the municipality's average altitude is 46 masl). In the south these fertile plains give way to lagoons and mangrove ecosystems which are part of the La Encrucijada Biosphere Reserve along the Pacific coast, while in the north of the municipality the mountainous parts correspond to El Triunfo Biosphere Reserve. In terms of land tenure, the municipality is divided into private ranches and *ejidos* where land tends to be titled (and farmed) individually. A dynamic land market exists, with land purchases among *ejidatarios* and private corporations.

Cattle ranching in Mapastepec dates back to the 19th century with cattle-ranching estates managed by foreigners, who sold live cattle to distant markets using the coastal railway. Many of these large estates were later expropriated and redistributed via agrarian reform, which created *ejidos* throughout the municipality. Informants described Mapastepec as a laboratory for a number of commercial agriculture initiatives, ranging from rice and sesame in the 1970s to tobacco in the 1980s. These private initiatives were quickly abandoned, but coupled with land reform, they attracted immigrant communities from other south-eastern states.



Map A.4 Municipality of Mapastepec (Source: INEGI 2013)

Pastures currently cover just over half the municipality's area. Many cattle ranchers nowadays are dairy producers (as well as meat), selling milk to companies such as Pradel and local cheese producers. Oil palm plantations were initially established via government support programs first in 1980 and then again in 1998, although the distance to the nearest buyer rendered the initiative unviable. In the context of a 412% rise in the price of palm oil between 2000 and 2011 (Castellanos-Navarrete and Jansen 2015), the government financed the construction of the AGROIMSA processing plant near the Mapastepec *ejido*, and the state government provided a lot of support from 2007 to 2012. In 2014, oil palm plantations accounted for 8206 ha of Mapastepec (SAGARPA 2015), but oil palm producers have been facing a crisis since 2014 when international prices fell by 50%. Producers found themselves without a buyer for their harvest, which came to aggravate already tense relationships between companies and producers in the sector. The coastal plains are also used for other productive activities, such as mango trees (1209 ha), maize (2659 ha) and some banana plantations (SAGARPA 2015). While fishing is prevalent along the coast, the mountainous region has important coffee production (3156 ha), but has suffered considerably from the coffee rust epidemic, which put a number of local coffee cooperatives out of business in the 2014–2015 cycle.

The actors associated with LUC are first cattle ranchers, organized in associations, and private companies such as SuKarne (dedicated to cattle fattening) and Sandi, which owns over 1000 ha, where they produce meat, milk and fodder. In the case of oil palm, there is a producers' society created by the palm oil company to pressure for government funds for the construction of the processing plant. Despite promising that producers would later be partners of this plant, it eventually remained in private hands. A recently created ARS was perceived as a front for accessing government funds, which were 'pocketed' by the forestry technician according to informants. Actors favoring conservation and

sustainable resource management were scarce. This region lies outside of CONAFOR's eligible areas for reforestation and restoration and CONAFOR-PES in *ejidos* in Mapastepec seems to have waned as rules have changed, budgets have been cut and other regions prioritized. CONANP has an office in the region, yet reports limited coordination with other institutions.

Informants identified deforestation as an ongoing process, with cattle ranching being the main driver. With losses generated by the coffee rust epidemic, new pastures are being established further up mountain slopes. The remaining large trees are being harvested for timber by a new sawmill that has been established in the municipality. According to local informants, the sawmill company has close ties to high-ranking officials and has obtained the necessary permits through questionable means. Regional knowledge of REDD+ was negligible, while attempts toward sustainable management and LED have reported limited success.

Ch- 5: Selva El Ocote Biosphere Reserve (Chiapas) 'Decreasing' emissions site

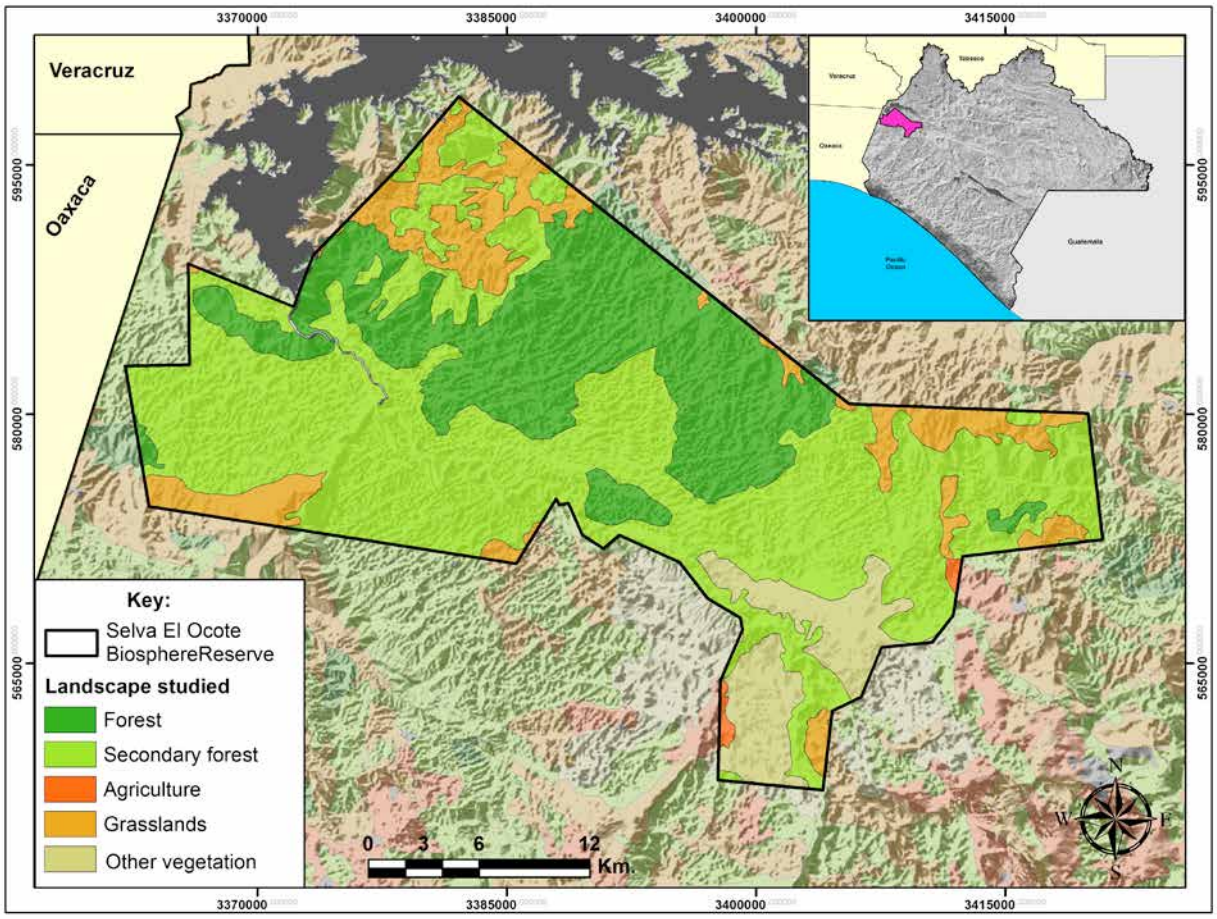
The Selva El Ocote Biosphere Reserve is a federal reserve located in the western part of the state of Chiapas, which was created on top of an existing, smaller reserve in 2000 and has a surface area of just over 101,000 ha (SEMARNAT 2001). The reserve contains examples of high evergreen rainforest, medium sub-deciduous forest and low deciduous forest and the karstic geology means that the underground caves and rivers are important for water capture and the protection of cave species.

The Selva El Ocote Biosphere Reserve is managed by CONANP and includes portions of four municipalities, but is mainly located within Ocozocoautla and Cintalapa. This site was selected as it represents a 'decreasing' emissions site outside of REDD+ early actions sites in Chiapas. The direction of this reserve has been proactive in the construction of alliances and coalitions to strengthen actions in line with the reserve's goals.

This part of Chiapas was sparsely populated by private ranches until the 1970s, when the region served as an escape valve for land pressures in other regions in the state. From the 1970s onwards, significant numbers of indigenous families migrated from the Highlands, establishing new *ejidos* on vacant national lands as well as taking over private properties. Coffee production peaked in the 1990s, but has since been affected by volatile prices and different diseases, particularly coffee rust in recent years. The area occupied by this crop has shrunk by around 60% over the last two decades and production levels are below the state average. The reserve has been seriously affected by forest fires, losing 22,000 ha of forest cover in 1998 and 8000 ha in 2003 (the latter fire largely coinciding with the area affected by the first fire).

Around half of the reserve is occupied by *ejidos* and is dedicated to the production of maize and beans and extensive cattle ranching A doubling in the prices offered for cattle over the last 5 years has further encouraged the activity and in some areas pastures have gradually replaced coffee plantations. Nevertheless, within the reserve, there is a net transition toward forest recovery, largely due to revegetation processes after the forest fires of 1998.

The current director of the reserve has managed to build alliances with a variety of actors, at one point promoting collaborations between the Chiapas state government and those of neighboring states in order to manage the reserve as part of a larger regional ecosystem. Owing to a variety of difficulties and conflicts over state borders, this interstate initiative did not prosper. Currently, the reserve works with five regional NGOs in different areas, such landscape restoration, ecotourism, conservation agriculture, coffee, honey, PES and carbon management. The reserve has also attracted international funding from IUCN, USAID and GEF to work on carbon, climate change adaptation and strengthening connectivity in biological corridors. In particular, the AMBIO cooperative has been a key NGO in



Map A-5 Selva El Ocote Biosphere Reserve (Source: INEGI 2013)

the area, pioneering work with carbon and implementing the *Plan Vivo* methodology with individual landowners for land-use planning. CONAFOR presence has decreased in recent years and only two *ejidos* in the reserve (of 15) currently receive PES.

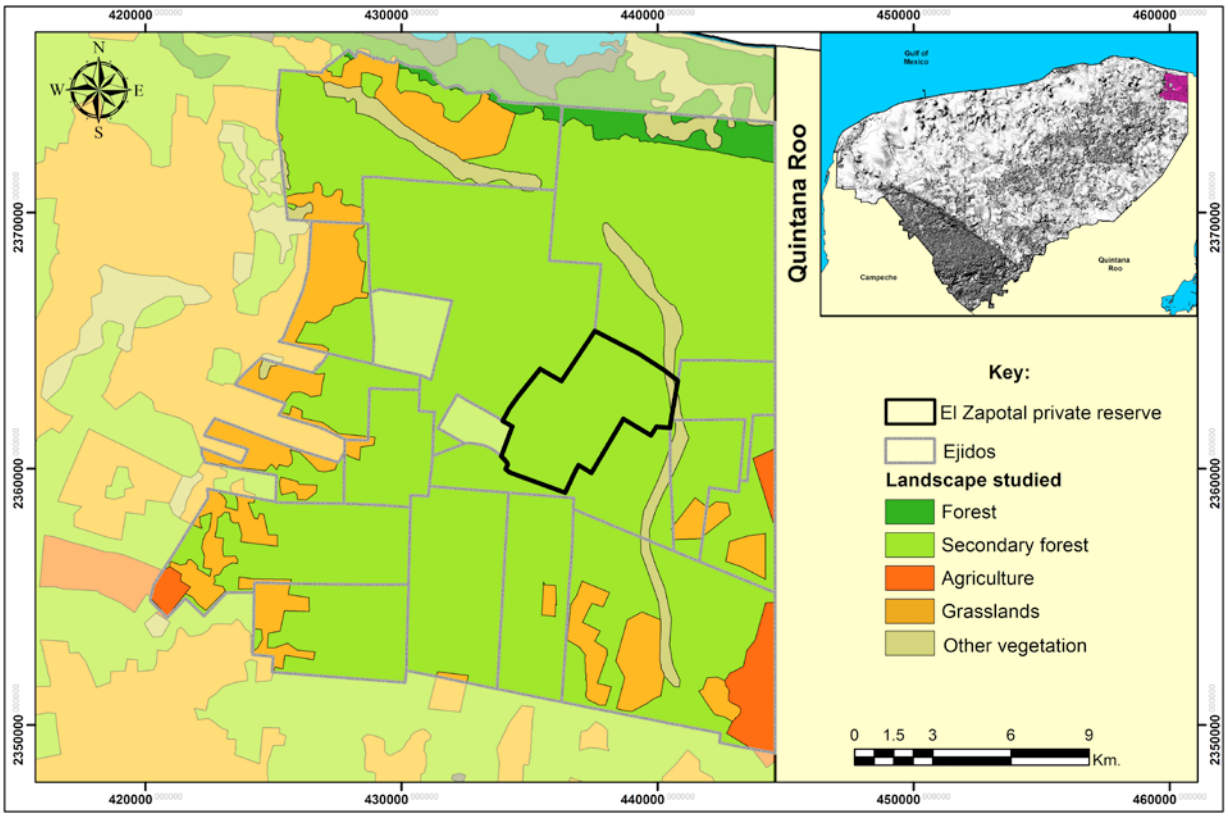
Although CONANP claims to work with all *ejidos* located in and around the reserve, it appeared to collaborate with a limited number, mostly those ejidos with important forest cover and more strategic locations for conservation. Relationships between the reserve authorities and the *ejidos* were often difficult and characterized by constant bargaining, with communities looking for benefits and the reserve attempting to limit traditional agricultural activities. The reserve is particularly vulnerable to climate change (fires, changing rain patterns and new crop diseases) and large parts are unsuited to agriculture due to the karstic geology. CONANP is attempting to reorient and diversify productive activities, with the support of different NGOs, but funding is scarce and project cycles can be short, challenging the consolidation of its efforts.

Yucatán State

Y-1: El Zapotal and surrounding areas (Yucatán) 'Decreasing' emissions site

The north-eastern corner of Yucatán conserves one of the last relics of medium semi-deciduous forest in the state. This site definition includes the El Zapotal reserve (4100 ha) as well as the surrounding *ejidos* and ranches, which are located in the north-eastern corner of the municipality of Tizimín. El Zapotal is a private reserve established on land purchased in 2002 by the NGO Pronatura Península de Yucatán, A.C. and represents an attempt to create a biological corridor between the Ría Lagartos Biosphere Reserve to the north and the Yum Balam reserve to the east, in the neighboring state of Quintana Roo. In 2012, the municipality of Tizimín was included in CONAFOR's Special Program for the Yucatán Peninsula (PEPY), and half of the PEPY funds applied that year (MXN 736,200, or USD 39,000) went to five *ejidos* within this site. Apart from PES, PEPY has financed additional components, such as agroforestry plots and fire management brigades.

The forests in this region have been the target of intense exploitation, initially gum-tapping then, in 1938, a timber processing plant was established in La Sierra ("the sawmill"), with living quarters and services in the neighboring settlement of Colonia Yucatán. This operation lasted around 40 years, initially exploiting the precious timbers (particularly *Cedrela odorata*) and later establishing a plywood factory, with timber camps throughout the region. The current *ejidos* evolved from these gum-tapping or timber camps. Many were later abandoned due to flooding, forest fires and a 3-year locust plague in the 1980s. These abandoned *ejidos* were repopulated around 1997, when PROCEDE sought to "regularize" as many hectares as possible, enticing families in search of land with legal documents that could be prepared in their names. Hence, *ejido* inhabitants are few, of recent arrival



Map A-6 El Zapotal private reserve and surrounding areas (Source: INEGI 2013)

in a number of agrarian irregularities, which present challenges for community authorities when looking to meet government program requirements.

Current activities are agriculture and cattle fattening, although many acknowledged that *milpa* farming is done more for pleasure and tradition than for commercial motivations. Some producers have beehives and goats. A major source of income is seasonal labor in neighboring ranches, along with migration and family remittances. This income is sometimes complemented with work in environmental programs, such as fire management, biodiversity monitoring, or direct cash transfers from PES. El Zapotal reserve also has a reverse LUC compensation scheme that pays approximately MXN 8000 (USD 420) per hectare for the restoration of large areas. Aside from PES schemes, government and nongovernment actors have sought to encourage fire management in the region, due to the very high occurrence of forest fires in Tizimín.

Pronatura has a close relationship with CONAFOR and, in this region, acts as a forestry technician for local *ejidos*, looking to bridge relations between communities and government programs, as well as with municipal governments. On a local level, Pronatura seeks to be seen as a 'good neighbor' with interests in common with surrounding communities (i.e. vulnerability to forest fires). CONANP reports close ties with other government institutions and NGOs, and successful community participation projects.

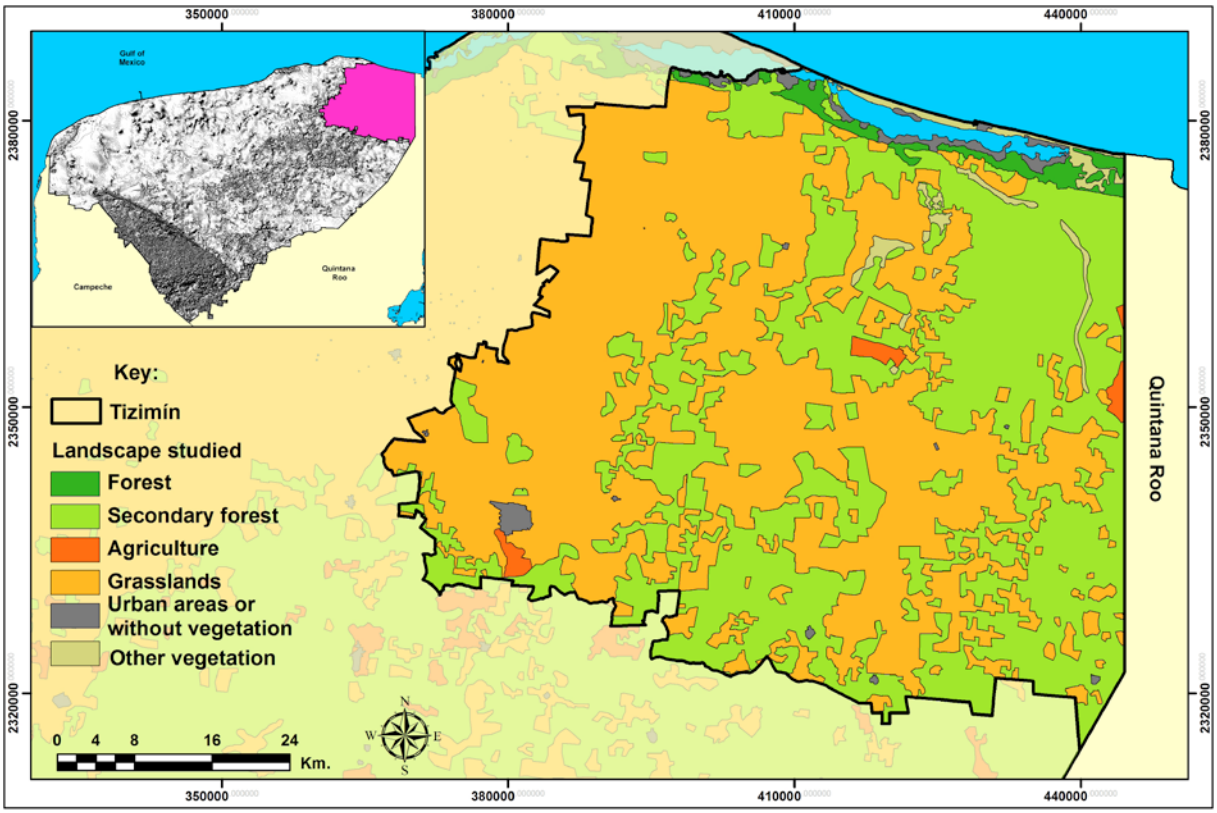
An underlying tension between conservation and development emerged in many interviews. Local communities frequently expressed a lack of knowledge and trust in NGOs and government, while neighbors of the reserve consider that it affects their development possibilities because of human–wildlife conflict (some informants losing all their 2014 crops to "animals from the reserve"). Others consider that the creation of the reserve effectively closed a ranch in which some locals had had seasonal labor opportunities. In this sense, a future challenge lies in building relationships of trust through accountability, in a context where rural inhabitants also expressed concerns about corruption and clientelism in the application of government programs.

Y-2: Municipality of Tizimín (Yucatán) 'Increasing' emissions site

Tizimín is the largest municipality in the state of Yucatán, covering more than 10%, with approximately 4000 km^2. With a population of 73,138 inhabitants, official municipal marginalization levels are considered medium (INEGI 2011). The north-eastern portion of the municipality (near El Zapotal private reserve) has a history of forestry activities, but the rest of the municipality is characterized by cattle ranching and frequent wild fires. Tizimín was selected as part of CONAFOR's REDD+ early action areas in 2012, although local informants were unclear about the reasoning behind this designation, since the region is known for its history of deforestation. Paiz (n.d.) identifies increased emissions in Tizimín, due to extensive cattle ranching supported by government subsidies.

The region's limestone plains have rocky, alkaline soils with low productivity and are highly dependent on external inputs, while sinkholes and lagoons provide the only sources of water. In terms of tenure, it is divided almost equally into private ranches (203,752 ha) and *ejidos* (190,535 ha). In the case of *ejidos*, land has often been certified as 'common use', although in practice it is managed individually. According to municipal authorities, there are approximately 4000 cattle ranches, mostly of 25–30 ha, although some ranches have more than 100 ha. A dynamic land market exists, with land purchases by Mexican private corporations and entrepreneurs.

While in the drier, western parts of Yucatán, sisal (*henequen*) estates flourished in the second half of the 19th century, the humid jungles of Tizimín (nourished by precipitation from the Caribbean) remained largely intact until the mid-20th century, with sporadic deforestation by a few large cattle-



Map A-7 Municipality of Tizimín (Source: INEGI 2013)

ranching estates, along with gum extraction and the harvesting of precious timbers in the eastern part of the municipality. Informants concurred that the main deforestation drivers in recent years have been cattle ranching, which along with slash-and-burn agriculture, have led to the loss of 60% of the municipality's forest cover.

Rural development plans in the context of the National Felling Program in the 1970s sought to convert this region's jungles into mechanized, irrigated *ejido* farms inhabited by migrant laborers. However, these large programs were quick to fail, encountering poor soils and provoking salination due to excessive water pumping from sinkholes. Productive maize or bean fields were eventually converted to pastures, facilitated by the existence of an endemic grass, which quickly spread through the newly cleared lands.

After years of exporting low quality calves for fattening in other parts of the country, cattle ranching has been able to consolidate itself and innovate thanks to government programs, such as irrigated pastures and genetic improvements in herds. A number of private cattle ranches now have high-quality animals raised under strict sanitary regulations, to sell to the US market. This was largely achieved by strong negotiation skills on the part of regional ranchers' associations, such as the Tizimín Ranchers' Association, founded 60 years ago, and the East Yucatán Regional Ranchers' Union (UGROY), which brought together 23 local cattle-ranching associations in 2015. These cattle ranching associations are important players in the political arena, with close links to the state government.

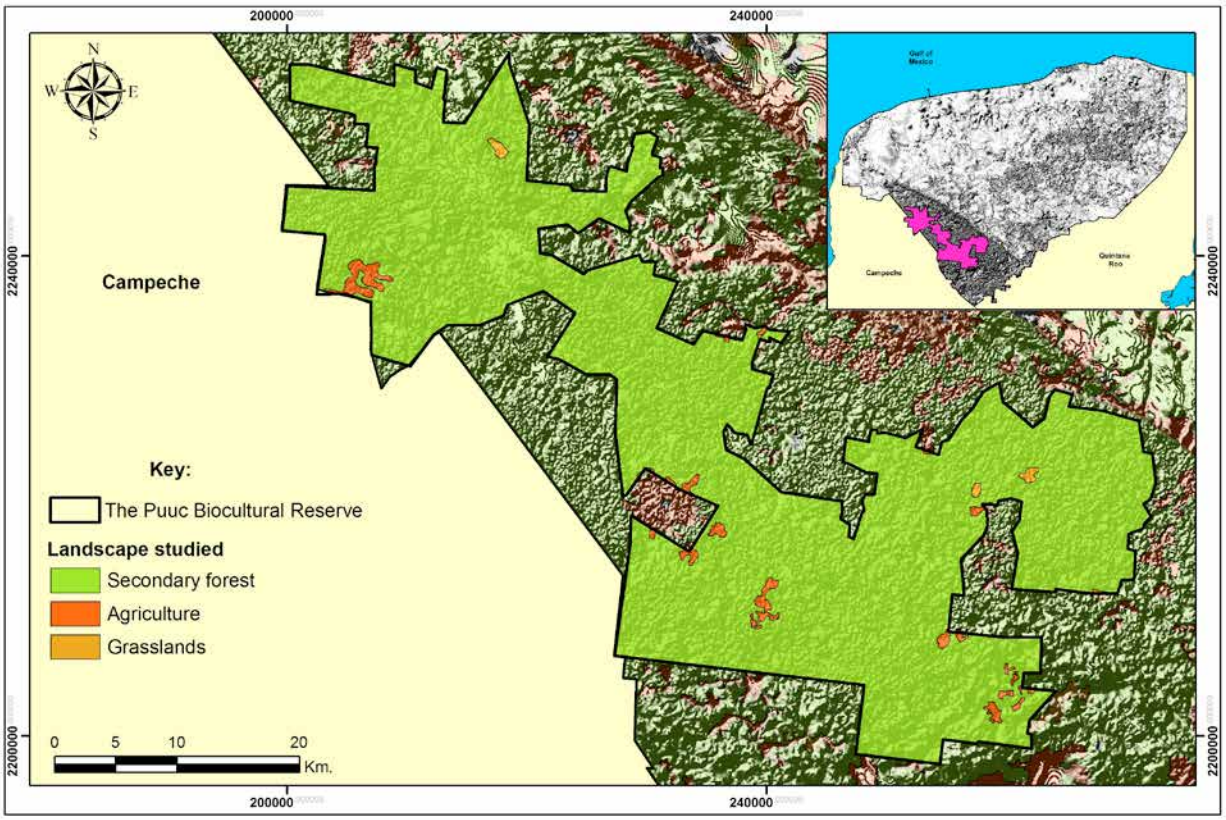
The state environment ministry (SEDUMA) has recently turned its attention to Tizimín, signing collaboration agreements with the regional ranchers' association UGROY. However, the municipal government reports limited funds for attending such a large population distributed among more than 100 communities. In the context of the municipality's inclusion within CONAFOR's REDD+ early

action areas, local *ejidos* have received cash transfers, particularly in the north-eastern portion of the municipality, where forest cover is less fragmented (see Y-1).

Tizimín has been the recipient of innovative agro-industrial projects in recent years, generally initiated by private actors. These include new horticultural projects of watermelon, chili, and over 1,000 ha of papaya plantations, established in 2015. A recent attempt to cultivate a biofuel crop (*Jatropha curcas*) failed due to high temperatures in the region. In another example, a private company had plans to establish over 100 ha of *Stevia rebaudiana* in 2015. At the same time, regional knowledge of REDD+ was negligible, with many local informants being surprised to hear that CONAFOR had designated the region a REDD+ early actions area.

Y-3: The Puuc Biocultural State Reserve, Yucatán. 'Decreasing' emissions site

The Puuc Biocultural State Reserve (REBP) was established by the Yucatán state government in 2011, incorporating an area of almost 136,000 ha which includes parts of five municipalities. This initiative supposedly represented a 'paradigm shift' in conservation strategies by emphasizing the biocultural dimension and recognizing the importance of generating benefits for local Maya inhabitants and resource users in order to guarantee the conservation of the area. The region is also an important destination for archeological tourism and is known as *La Ruta Puuc*, in reference to the particular type of Maya architecture that characterizes many archeological sites. The REBP is considered to be a decreasing emissions site despite threats from commercial agriculture in the surrounding regions (see Y-5).



Map A-8 The Puuc Biocultural State Reserve (Source: INEGI 2013)

The REBP is located in the south of Yucatán state (Cono Sur) and is mostly covered by dry, deciduous and semi-deciduous tropical forest. The decree refers to important biodiversity indicators and the reserve includes a number of watersheds important for the provision of water to the state capital, Mérida, as well as acting as a corridor between existing federal and state PAs. This area had historically been used for slash-and-burn maize agriculture, creating a mosaic landscape in different phases of forest succession. In the 1960s, a state government program (*Plan Chaac*), created new areas of irrigation that permitted the establishment of fruit tree plantations, particularly citrus, along what is now the northern border of the reserve. In the 1970s, the National Felling Program (PRONADE) also affected this region, although much of the felled forest has since recovered and the area is now characterized by a patchwork of primary and secondary forest.

The reserve's decree mentions the importance of constructing innovative governance structures and in 2014 the Puuc Biocultural Inter-Municipal Board (JIBIOPUUC) was created, including among its functions the management of the reserve. Six municipal governments currently participate in the JIBIOPUUC, which includes a citizens' council and local users' committees. The JIBIOPUUC also acts as an APDT in the context of REDD+ early actions in this region. As such, it has attracted interest and resources as a local governance innovation, receiving funding from government agencies such as CONAFOR and CONABIO, as well as TNC and international development agencies (Latin America Investment Facility, LAIF, and German International Development Agency, GIZ).

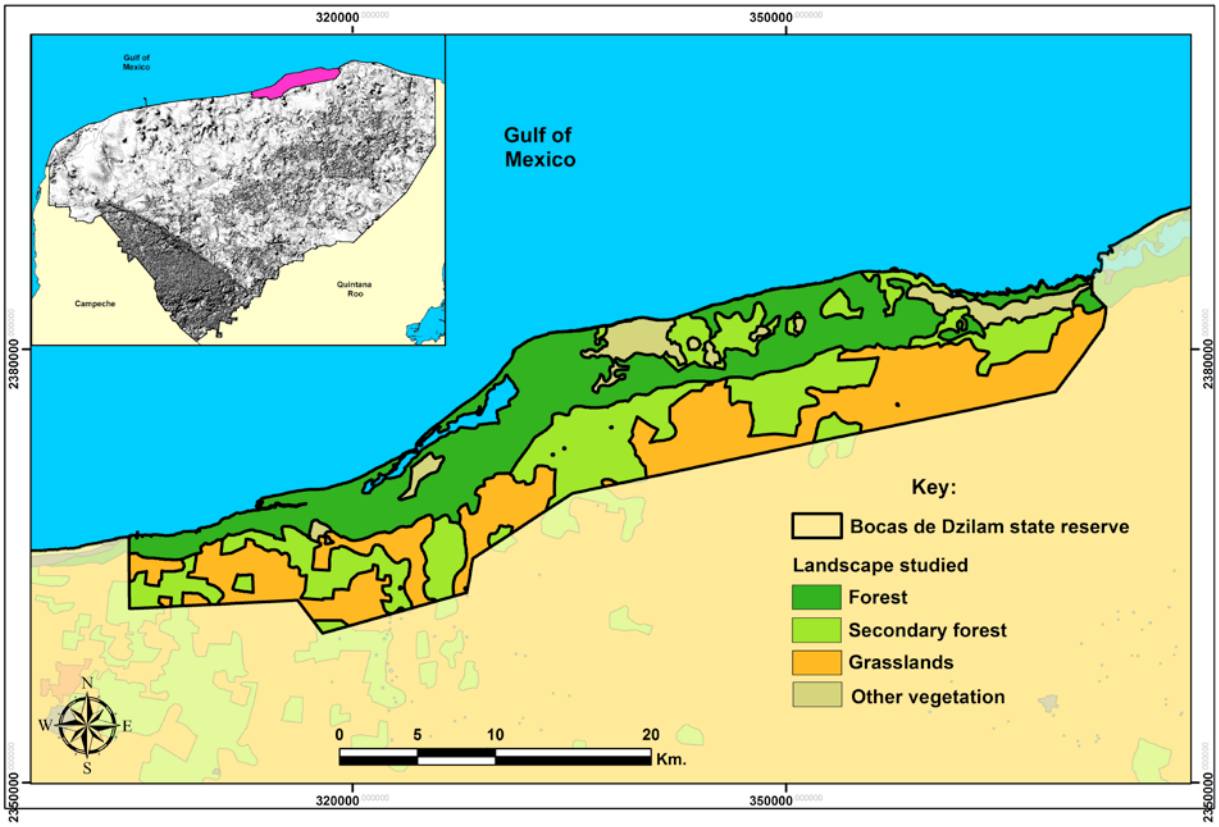
Only three *ejidos* have their lands entirely within the reserve's borders and all have very favorable demographic situations (extensive forest lands and limited population). To some extent, these *ejidos* are able to live off their forests through PES programs, community forest management (including charcoal production) and some have opportunities to work in biodiversity monitoring. In contrast, many of the surrounding *ejidos* have less favorable circumstances and access to fewer resources, impacting the reserve with illicit forest extraction and hunting.

As a REDD+ early action site, there have been regular interactions between CONAFOR, the Regional Forestry Association *Nukuch ka'ax*, independent forest technicians and local communities. In the case of the matching-funds scheme, TNC (through *Alianza M-REDD+*) has been a funding partner and has taken a proactive role in the implementation of the program in three *ejidos*, promoting a number of LED alternatives. Within the larger biocultural reserve, there is a privately owned reserve (*c*. 1500 ha) that has worked alongside NGOs and the state government environmental ministry to support conservation, monitoring and LED activities.

Y-4: Bocas de Dzilam State Reserve, Yucatán 'Decreasing' emissions site

The Bocas de Dzilam State Reserve was decreed by the Yucatán government in 1989 and has a surface area of almost 70,000 ha (17,500 ha of which are marine areas). This reserve is located along the north-eastern coast of the state looking out onto the Gulf of Mexico, and includes important mangrove forests, low deciduous forest, flood forest, sand dunes and aquatic ecosystems. The reserve plays an important role in connecting the neighboring federal Ría Lagartos Biosphere Reserve to other PAs along the north coast of the Peninsula. The reserve occupies parts of two municipalities, Dzilam de Bravo and San Felipe.

According to key informants and secondary sources, this reserve has maintained its forest cover and the surrounding areas show low levels of deforestation and forest degradation, with some evidence of revegetation. The institution responsible for the management of the reserve is the state environmental ministry (SEDUMA), which maintains a small camp in the town of Dzilam de Bravo (mainly dedicated to turtle protection). In 2000, the reserve was declared an 'internationally important wetland



Map A-9 Bocas de Dzilam State Reserve (Source: INEGI 2013)

area' (Ramsar) and in 2006, a management plan was published for the reserve, with different use zones (SEDUMA 2012).

This is a region of low agricultural potential, with thin, rocky soils and high-salinity groundwater. Historically, fishing has been the principal economic activity, which had little effect on terrestrial vegetation. Salt production along the coast had some limited impacts in the first half of the 20th century. In the 1950s and '60s, there was a plywood factory in the municipality of Dzilam de Bravo that felled parts of the dry forest, but it closed in the 1970s after political conflicts. Since then, the key event in terms of forest loss and LUC was Hurricane Isidore, which struck the north Yucatán coast in 2002. This destroyed large portions of the mangrove forests, sending salt water inland into the *ciénagas* (marshlands), which eventually killed inland mangrove vegetation. The hurricane also leveled parts of the inland dry deciduous forest, making cattle ranching unviable. This led to a temporary exodus from the region which permitted revegetation. Both municipalities lost population between 2000 and 2005 (Paiz n.d.). After Hurricane Isidore there were reforestation programs and a new value was put on mangrove forests; their use is now prohibited. Vigilance and sanctions have increased and this has aided the recovery of this ecosystem. However, forest fires also continue to be a driver of LUC. In September 2016, the reserve lost 6000 ha to fire – in the middle of the rainy season.

Fishing still accounts for 80% of local incomes according to informants. Nevertheless, there are now other opportunities, such as tourism, boat rental and cattle ranching. There is an growing tendency to invest earnings made from the sea (fishing) in the land (cattle). This is partly a reflection of a generational shift, where fishing is seen a young person's activity, physically demanding and high risk. Increases in cattle prices have also encouraged a recent boom in this activity, despite the challenges of poor soils, drought and salination.

In the last decade, the extraction of sea cucumber, buoyed up by strong demand in Asia, has had various repercussions. The earnings are potentially so great that it attracts people from all over the south of the country. Despite being regulated by government permits, much of the extraction is illegal and often involves the establishment of illicit camps in the mangrove forests, where the sea cucumbers are boiled in large containers. Apart from the deforestation caused by these camps, there is contamination of the surrounding areas due to the cooking process. The 2016 fire seems to have been caused by illegal sea cucumber activities.

Agricultural subsidies to these two municipalities are low, reflecting the poor conditions, although subsidies for cattle ranching are significant, especially in San Felipe, where the activity is more widespread. We only identified one NGO working on agriculture, specifically on forest-pasture systems for cattle. This work was supported by CONABIO's biological corridor program, but CONABIO subsequently withdrew from the area. Some limited forested areas have CONAFOR-PES, although this region is not part of the REDD+ early actions area.

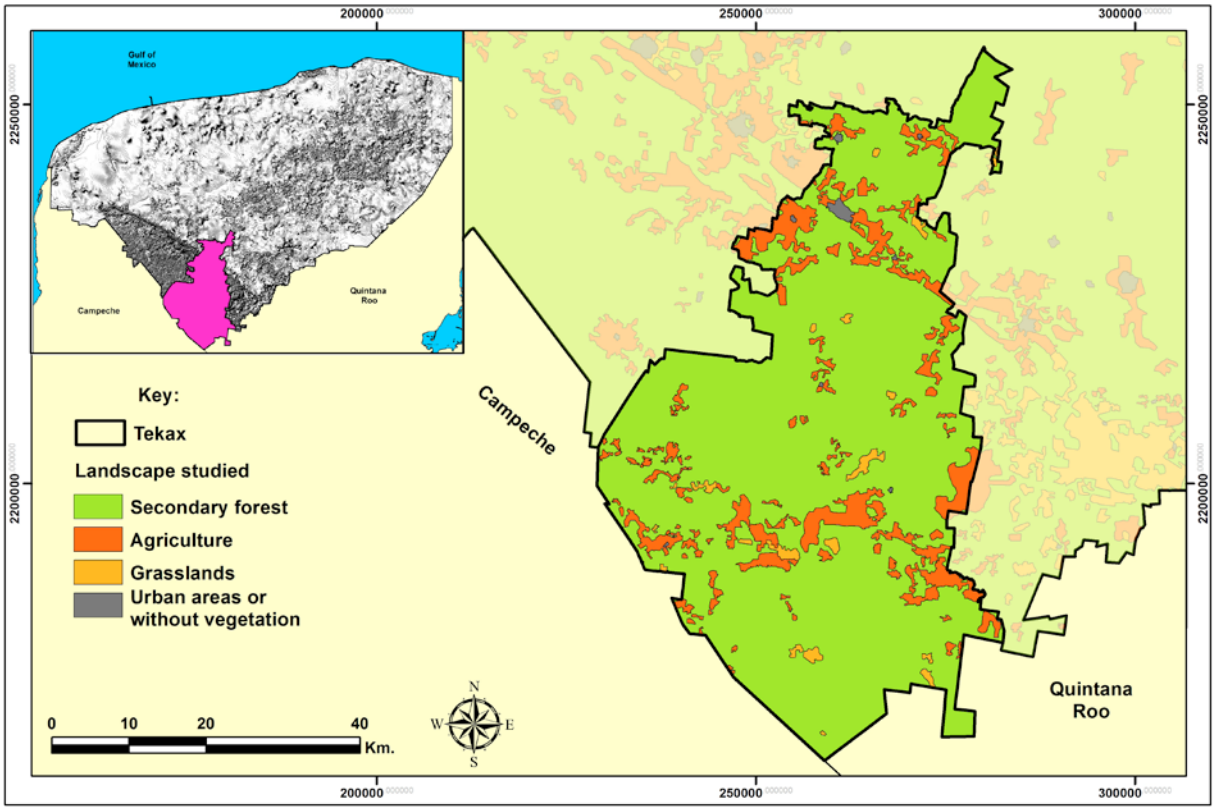
The reserve has received support to conserve its biodiversity from a variety of actors. In Dzilam de Bravo the now disbanded ecotourism cooperative *Sayachulep* received important funds from federal and state governments, as well as from a regional NGO, *Niños y Crías* A.C. as part of their 'Save the Flamingo' campaign. However, because of conflicts caused by one particularly powerful family in the cooperative, members sold the business to a private company, and now work for this company in the restaurant or as boatmen. This experience has discouraged further community organization around ecotourism and conservation. In the case of San Felipe, the municipal government began to work with other municipalities and levels of government in the wake of Hurricane Isidore (Dzilam de Bravo did not get involved in this initiative). USAID and then UNDP financed different training programs for fire management and there is now a municipal contingency plan, as well as municipal regional risk atlases. According to informants, the state government also increased its presence after the hurricane and now people know what to do in an extreme weather event, tying up their boats in protected spots and preparing their houses for high winds, etc.

The immediate challenges for this region will be climate change adaptation, the regulation of tourism construction projects on the coast and the control of sea cucumber extraction. Interviewees in Dzilam de Bravo also mentioned the presence of a new clean energy company looking to rent lands from local *ejido* members to establish wind turbines. Information regarding this project was scarce and the company seemed to be adopting a 'one by one' strategy that may have the potential to divide *ejido* members and cause conflicts.

Y-5: Municipality of Tekax, Yucatán. 'Increasing' emissions site

Tekax is a large municipality in the Cono Sur region of Yucatán with a surface area of 382 km^2. Its relatively deep soils and small hills permit other types of vegetation apart from low semi-deciduous dry forest. This municipality was identified by key informants in the state as an area of high deforestation and forest degradation, which was confirmed by Paiz (n.d.). This municipality is part of CONAFOR's REDD+ early actions area in Yucatán and a section of the Puuc Biocultural State Reserve is in Tekax, hence the municipal president forms part of the JIBIOPUUC (see case Y-3).

This fertile region was relatively well conserved until the 1960s due to its geographical isolation and lack of infrastructure. In the 1970s, the land began to be colonized and was turned into *ejidos*. However, some *ejido* projects proved to be more permanent than others. With the arrival of the National Felling Program in 1975, around 17,000 ha of dry tropical forest were felled in this region during the following decade (Torres Mazuera 2016). This government policy aimed to make agriculture more efficient, replacing traditional slash-and-burn agriculture with mechanized



Map A-10 Municipality of Tekax (Source: INEGI 2013)

agriculture, that involved hybrid seeds, agrochemicals and tractors. According to interviewees, the forest soon began to recover, partly because agriculture became more sedentary and also because of migration to nearby municipal capitals. Droughts and poor infrastructure have made the southern parts of the municipality challenging for *ejido* members and there have been a process of abandonment.

Production is still dominated by *ejido* agriculture, but the tendency is toward more private ownership. Private investors, including US companies, are buying up ranches with between 1000 and 3000 ha where they cultivate soya, sorghum and different vegetables, principally for the US winter market. Mennonite groups, migrating to the region from the state of Campeche to the south are also associated with LUC as they buy up land for soya and sorghum production. Honey is still important to many *ejido* farmers, but is increasingly threatened, particular in the context of GM soya which contaminated the honey. This has led to a prolonged conflict between honey-producing organizations and the federal agricultural sector. The honey producers won a court case in 2015 that has temporarily prohibited the sowing of GM soya. In October 2016, the Yucatán state government declared the state to be a 'GM-free zone'. This has set up an interesting conflict between different levels of government and interest groups over the use of the territory.

SAGARPA supports both soya and sorghum production with discounted seeds and subsidies paid on every ton harvested; this includes private landowners who are often in a better position to make the most of these subsidies because of the economies of scale involved in mechanized, high input agriculture. In the case of *ejidos*, the *Unión de Ejidos Agropecuarios e Industriales del Cono Sur del Estado de Yucatán* has been an important collective actor for negotiating with the state and federal governments. Members of this organization have 6000 ha of soya under cultivation in the municipality. The demand for soya mainly comes from the intensive pig farms that have grown and been supported by the state government's Ministry for Rural Development (SEDER).

Access to irrigation is a key factor determining land use in the context of ever longer droughts. For those that do not have sufficient capital and/or networks to access irrigation (water tables are over 100 m deep), the only option is crop insurance, which has been provided by the state government to some degree but remains a point of negotiation between *ejido* members and government institutions. Private agricultural firms are very present in the region, often filling the gap left by the withdrawal of government agricultural extension workers. These companies offer seed packages and technical assistance.

Most informants were not optimistic about the future of the forests in the region. The CONAFOR-PES scheme was perceived as very uncompetitive in comparison with other possible land uses which, in the case of soya, could generate 10 to 20 times more income per hectare. LUC permits are not always obtained before clearing forest and vigilance is weak. Many *ejidos* are losing control of their land through a variety of processes, many of which are only semi-legal (Torres Mazuera 2016). This case study offers one of the starker contrasts between competing territorial visions, expressed in the implementation of opposing government policies in the context of favorable conditions for certain agricultural products. A loose alliance of private capital, government subsidies and broader agro-industrial interests are colluding to increase emissions in this municipality, despite being considered within CONAFOR's REDD+ early actions areas.

DOI: 10.17528/cifor/006798

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