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To Revalue the Rural? Transformation of the Mexican Federal Payments for Ecosystem Services Programs from Neoliberal Notion to Development Dogma

Author

Shapiro, Elizabeth N

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To Revalue the Rural?

Transformation of the Mexican Federal Payments for Ecosystem Services Programs from Neoliberal Notion to Development Dogma

By

Elizabeth Naomi Shapiro

A dissertation submitted in partial satisfaction of the requirements for the degree of

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Committee in charge:

Professor Lynn Huntsinger, Chair

Professor Nancy Lee Peluso

Professor Richard Norgaard

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Abstract

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The Mexican national Payment for Ecosystem Services (PES) programs pay rural landholders for hydrological services, carbon sequestration, biodiversity conservation, and improvement of agroforestry systems. The initial design of these programs was decidedly neoliberal, from their emphasis on the superior efficiency of market vs. state led environmental solutions, the attempt to institutionalize new property rights, and the explicit goal of commodifying ecosystem functions. My dissertation examines how the neoliberal notions of the programs' designers were hybridized at four distinct sites of articulation: 1) the federal politics of poverty alleviation in Mexico; 2) the institutional and cultural context of the ecosystem services being commodified; 3) rural social movements with distinct conceptualizations of 'conservation' and 'development'; and 4) the grounded environmental and political realities of rural Mexico. This analysis is based on a multi-sited ethnography conducted with program participants, intermediary organizations, and designers. It draws on recent literature in geography on neoliberal environmental governance and theories of hybridity to examine why and how the Mexican national PES program was hybridized at multiple scales, from the halls of the executive branch to the farmer's field, and in multiple forms, from the rhetoric of political speeches to the specific elements of the policy's design and from the theoretical tinkering of neoclassical economists to the quotidian practices of rural environmental managers.

This dissertation is dedicated to the many rural community members, social movement organizers, non-profit organization leaders, and government officials in Mexico who gave so freely of their time, opinions, and patience. Without their dedication and generosity this research would not have been possible.

¡Un mil gracias!

Table of Contents

Chapter 3

The Federal Politics of Rural Poverty Alleviation in Mexico

Chapter 4

The Institutional Context of Ecosystem Services

Chapter 5

Intervention of Rural Social Movements

Chapter 6

Neoliberalism's Double Bind: Devolution, Privatization and the Imposition of Free Market Conservation

List of Figures

List of Tables

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Chapter 1

Introduction

"Market-driven PES programs are the most likely to be sustainable because they depend on the self-interest of the affected parties rather than taxes, tariffs, philanthropy, or the whims of donors. By providing payments on an ongoing basis, PES programs avoid the pattern of short-term adoption followed by rapid abandonment that has characterized past approaches. They can also help reduce poverty because the areas that provide environmental services (and receive payments) correlate highly with areas of rural poverty."

World Bank, Project Information Document, Report No.: 35419, 2006, p. 4

"Our natural riches can and should be the solution to resolve the problems of marginalization and poverty in many rural and indigenous communities. For this reason we have launched programs focused on payment for ecosystem services, such as ProÁrbol, with which we can offer dignified sources of income for those who dedicate themselves to protect and restore our forests and woodlands, of which the indigenous people are the first owners."

Felipe Calderón Hinojosa, President of Mexico, May 31, 2007, Mexico City

"[Payments for ecosystem services] is new type of relation within a country and between countries. It is not just about sales and monetary gains, it is new form of relationship: between the city and the countryside; industries and campesinos; developed countries and undeveloped countries; regions that are producers of waste and those that are producers of oxygen."

Miguel Tejero, leader in the ¡Movimiento el Campo no Aguanta Más! rural social movement, November 22, 2005

In reading the three quotations above, one has the sense that the speakers are discussing entirely distinct initiatives. In the first, the World Bank employs the theory and language of neoclassical economics to espouse a vision of market-efficient conservation in which, if only the opportunity costs can be accurately calculated, optimal conservation can be achieved. In the second quotation, the president of Mexico speaks eloquently of poverty alleviation and providing income sources to indigenous people for their environmental stewardship. And lastly, a rural social movement leader describes a radical shift in the social relations of disparate sectors and regions across the globe. Yet all three quotations reference the same initiative: the Mexican national "payments for ecosystem services" (PES) program.

My research examines these alternate interpretations of the meanings of PES, the context in which they originated, the actors who espoused them, and the specific impacts they have had on the design and implementation of the Mexican national PES program. In doing so, I find that the neoliberal interpretation of PES, found in the documents of multilateral lending

institutions, the websites of international environmental NGOs and the proposals of the original designers of the Mexican PES program, was thoroughly and irrevocably transformed into a state-led rural development program through processes of institutionalization, contestation and grounded practice.

PES is one of the many "market-based" conservation policies that rose in popularity and presence in the 1990s, promoted by conservation organizations in the ideological shadow of the Washington consensus. As conceived by neoliberal policy makers, PES re-imagines healthy ecosystems as self-functioning factories, the various outputs of which can be recreated as commodities to be privately held and traded in the free market. The discourse employed by the international conservation organizations and multilateral lending institutions promoting these programs is decidedly neoliberal, from an emphasis on the superior efficiency of market vs. state led environmental solutions, the attempt to institutionalize new property rights, and the explicit goal of commodifying ecosystem functions.

The rhetoric, and the intent, of the original designers of the Mexican national PES program were firmly based in this neoliberal logic. In 2003, the Mexican federal state implemented a national-scale program to pay rural landowners for conservation of forested lands, a proxy for the production of the hydrological services of increased water quality and quantity for downstream users. This was followed in 2004 by a second program focused on carbon sequestration, biodiversity conservation, and the diversification of agroforestry systems. The programs have, collectively, grown to be one of the largest PES schemes in the world and are upheld as a model for the development of similar initiatives (Wroughton 2008). Although the original designers of the Mexican national PES programs purported that it would introduce market-efficiency into environmental protection, almost all attempts to create markets for ecosystem services have failed.

My dissertation, based on a multi-sited ethnography of the Mexican national PES programs, explores the complex, multi-scalar processes through which the Mexican national program was transformed into a state-led subsidy aligned with national interests and rural realities. It analyzes the discursive practices of the actors involved, the influence of discourse on the evolution of the policy itself, and the specific ways in which these policies interacted with the grounded environmental knowledge and practices of rural participants. It finds that the neoliberal ideal type of PES as envisioned by program designers was "hybridized"[1] during the evolution of the Mexican national PES program through articulations with and active contestations by: 1) the still-strong Mexican federal state; 2) rural social movements with distinct conceptions of 'conservation'; 3) the institutional and cultural context of the newly minted ecosystem service 'commodities' in Mexico; and 4) the grounded practices of rural Mexico. The discourse of market-efficient conservation was subverted and the practice altered to more closely fit national interests, rural realities and alternative conceptions of the 'value' of socio-nature.

The national PES program was introduced into a Mexico already severely altered by decades of neoliberal restructuring, particularly in rural areas (Fox 1995; Fox 2000). However,

[1] The term "hybridized" is used here to describe a process through which the original design and intended outcomes of a policy or piece of legislation is altered through contestation by actors with distinct political agendas and worldviews to a final product which combines the expressed desires of both parties. It references a literature in Geography on hybrid neoliberalism and hybrid natures (e.g. Mansfield 2004; Robertson 2004; Bakker 2005, Mansfield 2007, Robertson 2007, McCarthy 2005) that will be discussed more thoroughly later in this chapter.

while the new PES program did manage to introduce some neoliberal "reforms" into Mexican environmental policy, I argue that the policy (and the policy makers) were also significantly altered in encounters with the continued strength of the Mexican state, the rural social movements who adopted and adapted the concept of PES, and with the cultural norms and grounded practices of rural participants.

Payments for Ecosystem Services: Evolution of a Conservation Concept

Definitions of ecosystem services vary greatly. The Millennium Ecosystem Assessment (2005) provides a widely cited and fairly comprehensive definition:

> "Ecosystem services are the benefits that people derive from ecosystems. They include provisioning (goods produced or provided by ecosystems), regulating (benefits obtained from regulation of ecosystem processes), and cultural (non-material benefits obtained from ecosystems) services, which directly affect people, and supporting services needed for sustenance of life on earth." (p. 3)

The concept of ecosystem services has been broadly employed by environmental organizations and policy makers who have despaired of incentivizing conservation of nature for "nature's sake", employing moral arguments of the intrinsic value of "wild" nature, and have shifted to a discourse of ecosystem services as a means to promote awareness of the anthropocentric values of maintaining healthy ecosystems (McCauley 2006). What began as a simple narrative device employed by environmental and ecological economists (Haneman 1988; Constanza & Daly 1992; Jansson et al. 1994) and conservation biologists (Daily 1997; Daily et al. 2000) to make explicit human dependence on healthy, functioning ecosystems, has lead to a paradigmatic shift in both scientific and global development discourse (Norgaard 2010).

Payments for ecosystem services are initiatives that provide financial incentives to the managers of an ecosystem to alter management practices in ways that increase the provision of a particular service or set of services. If kept to the above definition, the list of ecosystem services would be too large to count. The environmental services most commonly associated with PES schemes, however, are those that perform indirect "regulatory" or "cultural" functions: hydrological services such as water purification and mitigation of flooding, ecotourism, biodiversity conservation and carbon sequestration.

Initiated in 1996, Costa Rica's national PES program is recognized as the progenitor of PES schemes that employ both national and international funds to finance conservation in the global south. The program is a very complex set of policies that, collectively, manage to finance a wide range of environmental services, including carbon sequestration, hydrological services, biodiversity conservation and ecotourism. The Costa Rican PES program has been, for the most part, promoted as a conservation *and* development success story though it has been criticized for favoring large land owners and protected areas and, consequently, for failing to sufficiently include small holders and rural communities (Camacho et al. 2000). Following the relative success of the Costa Rican program, the primary funders of international conservation and development, such as the World Bank, the Global Environment Facility (GEF) Secretariat, the Inter-American Development Bank (IDB), the International Finance Corporation (IFC), the

World Conservation Union (IUCN), Conservation International, The Nature Conservancy and the World Wildlife Fund (WWF), began to promote these schemes worldwide (Conservation Finance Alliance 2004).

Countries throughout Latin America first began implementing large-scale PES projects, but they now exist throughout the world, from Kenya to the Philippines. Although difficult to track and to measure, it is clear that PES initiatives have become the emerging force in market-based conservation initiatives in the developing world (Carroll & Jenkins 2008). Scholarship on PES has primarily been concerned with analyzing the actual or potential environmental and social impacts of various initiatives in order to inform the creation of new programs (for reviews see Ferraro 2002; Pagiola et al. 2002; Maynard & Paquin 2004; Jack et al. 2008; Engel 2008; Goldman et al. 2008; Wunder et al. 2008). There has also been a strong emphasis, originating from both academic and NGO sources, on potential mechanisms for ensuring that the poor will benefit from PES initiatives (Landel-Mills & Porras 2002; Scherr et al. 2002; Grieg-Gran et al. 2005; Pagiola et al. 2005; Swallow et al. 2005; Proctor et al. 2009).

Critical, academic scholarship on PES has originated primarily from ecological economics and economic and political geography. Among geographers, Robertson (2000; 2004; 2006; 2007) and to some extent Lave (Lave et al. 2008) have treated PES most thoroughly, addressing the development of wetland and stream mitigation banking in the United States and the role of the fundamental nature of these ecosystems in frustrating the easy quantification and commodification of "services". More recently, a number of scholars have begun to focus on markets for carbon offset credits. Although the majority of these authors do not distinguish between offsets produced by ecosystem-based sequestration vs. reduced emissions thorugh technological innovation, their critiques of how the focus on market-mechanisms may preclude other policy options (Bailey & Wilson 2009), the unequal geographies of "accumulation by decarbonization" that privilege polluters in the global north (Bumpus & Liverman 2008), the role of the active production of an "ethical consumption" commodity culture in the development of the voluntary carbon offset market (Lovell et al. 2009), and the territorialization of the global carbon cycle (Lovbrand & Stripple 2006) also offer insight. Within the literature in ecological economics, the focus of PES critique has primarily been on the utilitarian focus and short- sightedness of the economic models employed to determine the "value" of ecosystem services (Costanza 2000; Kumar & Kumar 2008), but the fundamental notion of "ecosystem services" and the degree to which it has oversimplified scientific and development discourse, policy and investigation is also beginning to be addressed (Norgaard 2010). The ecological economists Brown, Corbera and Kosoy have also, with a variety of authorship configurations, done much to address issues of equity in PES from both theoretical and empirical standpoints (Brown & Corbera 2003; Corbera, Brown & Adger 2007; Corbera, Kosoy & Martinez 2007).

There have been surprisingly few studies of PES initiatives in Mexico, especially when compared with the number of assessments of the Costa Rican national program (Chomitz et al. 1999; Camacho et al. 2000; Castro et al. 2000; Subak 2000; Miranda et al. 2003; Snider et al. 2003; Sánchez-Azofeifa et al. 2007; Locatelli 2008; Wunscher 2008; etc.). An early survey of PES initiatives in Mexico by Burstein et al. (2002) showed a number of nascent and scattered municipal schemes to pay upstream landholders for watershed management and a thriving NGO-led program in Chiapas for sale of forest-based carbon offset credits on the voluntary market. This carbon program, the *Fondo Bioclimatico*, channeled funds through the Scottish

Plan Vivo Foundation to a regional NGO, Ambio, who then signed long-term contracts with small holder farmers for reforestation and forest conservation and has been the focus of significant scholarship (Brown & Corbera 2003; Nelson & de Jong 2003; Osborne forthcoming).

Given its scale and the degree to which it has been upheld by international policy makers as a model for the development of national-level PES initiatives, the Mexican federal program has been relatively understudied. Economists from the University of California, Berkeley and the Instituto Nacional de Ecología (INE), a federal environmental policy think tank, who participated in the initial design and assessment for the national payments for hydrological services program published a number of articles on the process of design and implementation and on modeling of potential impacts (Alix-Garcia et al. 2005; Alix-Garcia et al. 2006; Alix-Garcia et al. 2008; Muñoz-Piña et al. 2008). Later work has focused primarily on the institutional structure of the payments for carbon sequestration component of the PSA-CABSA program and the institutional barriers to development of a carbon market (Corbera & Brown 2008; Corbera et al. 2009). The results of a case study from the Lacandon region of Chiapas that examines the barriers to participation in the carbon and biodiversity components of the PSA-CABSA program has also been published (Kosoy et al. 2008). I mention these studies here to provide a sense of the type of research has already been completed on the topic of PES in Mexico. I will be discussing the results of these studies and how they compare to my own conclusions in later chapters.

Is "Payment for Ecosystem Services" Neoliberal?

The primary thesis of my dissertation is that the neoliberal ideal type of PES was, in the case of the Mexican federal programs, thoroughly hybridized, mutated through encounters with the entrenched political and cultural systems and grounded practices that the programs were attempting to reform. Instead, Mexican PES programs became a federal subsidy for rural poverty alleviation. It is therefore important from the beginning to define this ideal type and discuss the ways in which it is "neoliberal" before analyzing the process through which I believe this hybridization occurred. Geographers have been accused of using the term "neoliberal" rather too loosely (Larner 2003). I therefore begin this section with an overarching definition of the term.

David Harvey (2005) defines neoliberalism as, "A theory of political economic practices that proposes that human well-being can best be advanced by liberating individual entrepreneurial freedoms and skills within an institutional framework characterized by strong private property rights, free markets, and free trade." (p. 2). According to Harvey, there is within neoliberal theory an expressed belief in the power of markets to maximize social good. In opposition to the inherent good of the market, the state is portrayed as both inefficient and corrupt. Therefore state intervention in market transactions must be minimized as, "The state cannot possibly possess enough information to second-guess market signals (prices) and because powerful interest groups will inevitably distort and bias state interventions (particularly in democracies) for their own benefit." (Harvey 2005, p. 2). These are, of course, only the very foundational principles of neoliberalism laid bare. Likewise, the ideal types of neoliberal policy mechanisms are very consistently and explicitly articulated (see Table 1).

Table 1.1. Neoliberal principles and their corresponding policy mechanisms (Adapted from Peet and Harwick 1999, p. 52).

Principle	Policy Mechanisms
State Support of Markets	Public expenditures focused on supply-side investments, not social amelioration or progressive redistribution
Deregulation	Governments abolish regulations that restricts competition
Decentralization	Power of political decision-making (and often fiscal responsibility) is devolved to regional or local institutions
Privatization	State enterprises are sold to private owners
Property Rights	Legal systems focus on ensuring private property rights
Trade Liberalization	Removal of quantitative restrictions on imports
Foreign Direct Investment	Abolish barriers to investment by foreign firms
Exchange Rates	Maintain rates at sufficiently competitive levels to induce growth in nontraditional exports
Fiscal Discipline	Government budgets deficits are effectively capped
Tax Reform	Tax rates should be lowered and/or replaced by financial incentives

Peck and Tickell (2002) describe neoliberalism as evolving in three stages: 1) the ideal, utopian vision of such foundational scholars as Friedrich von Hayek and Milton Friedman, along with a group of other neoclassical economists of the "Chicago school"; 2) the reformist challenges of Regan/Thatcher in 1980s during which the heavy arms of the Keynesian state were "rolled-back"; 3) the 1990s in which neoliberalism was "rolled-out", technocratized and institutionalized and re-theorized by the likes of Harvey. As many authors have already discussed, the 'roll-back' processes of neoliberalism are almost never free of some type of state intervention or partnership (Peck 2001; Peck and Tickell 2002; Larner 2003; Mansfield 2004; Porter & Craig 2004; McCarthy 2005; Mansfield 2007; Peluso 2007) and are regularly accompanied by an opposing 'inclusive' re-regulation to counter the negative social and environmental impacts of the first phase. As Peck (2001) has pointed out, "A neoliberal state is not necessarily a less interventionist state; rather, it organizes and rationalizes its interventions in different ways." (p. 447). It becomes important then to counter the neoliberal rhetoric of 'free markets and free trade' with analyses that make explicit the puppeteer's strings attached to the market's free hand and which demonstrate empirically the actions taken to manipulate and protect the "market's" interest.

The concept of payment for ecosystem services is part of much larger sea change in international conservation policy toward market-based mechanisms that has evolved in close concert with the rise of the Washington consensus. Over the last fifteen years, market-based conservation approaches have become ubiquitous in both the developed and developing world (see Table 2). The implementation of market-based conservation began on a large scale with the cap and trade of sulfur dioxide pollutants in the United States in the 1990s. Since then cap and trade systems for green house gas emissions have already been established throughout the European Union and are currently being debated in the United States Congress. The World Bank estimated that the global market in carbon credits was approximately US$64 billion in 2007, double that of 2006 (Capoor and Ambrosi 2008). Eco-certification schemes have been

established for numerous products and their labels can be found on everything from the lumber at Home Depot to the packaged coffee at Starbucks. In the United States, military bases can now pay ranchers to conserve private habitat to mitigate damage to endangered bird species on firing ranges just as developers of wetlands can pay contractors to restore wetlands in another, less desirable location for housing (Robertson 2004; Bayon et al. 2008).

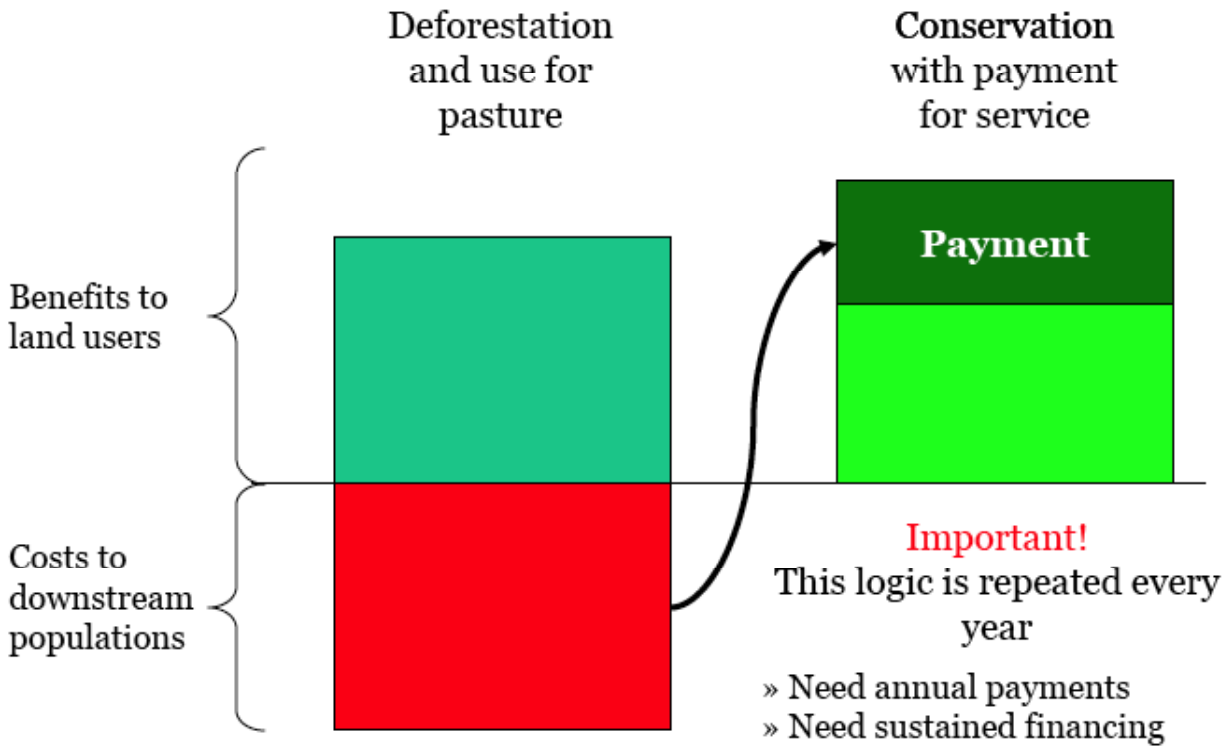
Table 1.2. Types and descriptions of market-based conservation (Adapted from Shapiro et al. Forthcoming)

Approach	Description	Examples
Private Land Acquisition	Individual or organization purchases land out right to conserve or restore	Private nature reserves
Direct Payments for Use	Individuals or organizations pay land owners for direct, conservation-oriented use of land	Deer hunting leases
Ecotourism	Individuals pay third parties or owners directly for relatively non-destructive access to areas of high scenic or conservation interest	Sea turtle nesting tourism
Certification	Third party private or non-profit certification of "eco-friendliness" of goods provides price premium for grower	Shade-grown coffee certification
Non-Timber Forest Products	The development of markets for non-timber forest products (NTFPs), such as medicinal plants, wild food products, rattan, etc., are encouraged to create incentives for local resource managers to favor extraction of NTFPs over more destructive timber extraction.	Ben & Jerry's Rainforest Crunch ice cream
Bioprospecting	Company pays owners of biodiversity rich land to conduct research on potentially marketable products and will often pay a percentage of resulting profits	Shaman Pharmaceuticals
Payments for Ecosystem Services	Governments, corporations or groups of individuals who directly benefit from specific ecosystem services pay the owners of the land on which they are produced (e.g. carbon offsets from reforestation)	Costa Rica, Mexico & China's national PES programs; New York City pays farmers in Catskills for runoff abatement
Cap and Trade	Governments place a regulatory cap on a pollutant, issue a limited number of permits to the polluters and allow for trade.	SO_2 allowance market in United States
Conservation Concessions	Governments lease state-owned land for set period to be used for conservation activities	Peruvian concessions for Brazil nut harvest in the Amazon
Conservation Easements	Private land owners sign land use agreements to sell the right to develop their land, limiting use, to non-profit organization or government agency for set period, often in return for direct payments or reductions in estate, property or income taxes.	Land trusts in the United States
Debt-for-Nature Swaps	One of the earliest forms of market-based conservation. Allows the debt of developing nations to be forgiven by the lender or purchased by a conservation organization in exchange for the implementation of conservation initiatives.	US Enterprise for the Americas Initiative or Conservation International's purchase of Bolivian debt in 1987

Market-based solutions to environmental issues appeal to neoliberal policy makers for a number of reasons. The logic employed by environmental economists is that environmental degradation is caused by market failure – the inability of the market to internalize the negative

externalities produced by pollutants or other destructive activities or the positive externalities provided by healthy ecosystems. The best way to rectify this market failure, so says this narrative, is to create demand for healthy environments that will lead to the development of greener markets. This can either be accomplished through increasing consumer awareness, making them willing to pay a premium for eco-friendly products (e.g. Rainforest Crunch©, shade-grown coffee, sustainably certified timber), or by capping the total amount of degradation, thereby creating a scarcity (e.g. global cap on greenhouse gas production -> carbon credit markets, Endangered Species Act -> market for biodiversity mitigation credits, etc.). This fee or premium is then from the user of the services that is then transferred to the producer of the service. According this logic, if these payments increase the economic return to the manager of the ecosystem above the potential returns from alternative, more destructive land uses (the opportunity cost), he or she will thereby be incentivized to change management practices in ways that conserve or enhance the production of the service (see Fig. 1). In the neoliberal lexicon, these types of environmental solutions are, because they are 'market-based', more efficient and effective than command and control approaches, such as regulation or taxation, that require the inefficient and clumsy intervention of the state.

Figure 1. A graphic representation of the economic logic of payments for ecosystem services. From a presentation given by Stefano Pagiola, Environment Department, World Bank to WWF, October, 2006 (slide #7).



There are three fundamental aspects of the discursive ideal type of PES that make it inherently neoliberal: a focus on the commodification of new constructs of nature; that these commodities are meant to be privately held and traded; and the strong emphasis on achieving greater efficiency and effectiveness through markets vs. state intervention (McAfee & Shapiro 2010). The logic of PES, based as it is on neoclassical economic notions of correcting the 'market failure' of widespread environmental degradation through the seemingly perverse logic of bringing 'nature' more fully into the market, is classically neoliberal. Though the economists and conservation biologists who originally employed the concept did not suggest that strategies for the conservation of ecosystem services should necessarily be market-based, this "bundling of nature into tradable bits of capital" (Smith 2007, p 21), fits well within the neoliberal logic. As conceived by neoliberal policy makers, PES re-imagines healthy ecosystems as self-functioning factories whose various outputs (i.e. water purification, carbon sequestration, biodiversity conservation, scenic beauty, etc.) can be created as commodities: defined and counted as separate from their source (individuation), assigned a monetary value (valuation), designated with individual legal ownership (privatization), and sold or traded (commercialization/displacement) (Castree 2003; Bakker 2005).

According to this theoretical construct of PES, any attempt to employ these initiatives to accomplish additional goals, such as poverty alleviation, will weaken their ability to meet conservation priorities. Advocates claim that, while financial benefits may trickle down due to the frequent overlap between areas of high poverty and the ecosystems targeted by PES initiatives, the targeting criteria of these programs must be determined by hard-nosed economics, informed by conservation science but unsullied by sentimental or political objectives (Chomitz 2006). As CIFOR economist Sven Wunder states,

> "(N)either the community that fully safeguards its environment nor the impoverished farmer… will emerge on the scene as major sellers of environmental services. These groups do not constitute a credible threat, so paying them creates zero additionality… The ideal seller of environmental services is, if not outright environmentally nasty, then at least on the edge of becoming so." (Wunder 2007, 53).

According to this construct, mixing poverty reduction with conservation compromises PES efficiency. PES schemes "cannot, for example, target their interventions to areas of high poverty, as these may not be the areas that generate the desired services. PES programs also cannot choose to promote particular land use practices solely on the basis of the poor being able to undertake them." (Pagiola, Arcena, and Platais 2005, p. 238).

There are four core premises endorsed by all advocates of PES. These are (a) that the monetary values of ES can be calculated or, at least estimated, (b) that ecosystem services themselves can be measured and offered for sale or remuneration (c) that market "demand" can be generated from those who benefit from ES, and (d) that the transfer of revenues from ES beneficiaries to those who manage the ES-producing landscapes will slow the degradation of these ecosystems (McAfee & Shapiro, 2010). Beyond these basic assumptions, there is a great deal of disparity in how promoters at the international level have understood PES: how these initiatives were to be designed, who would be involved, and their ultimate objectives. Although I will discuss these differences in much greater detail in the context of Mexico and its federal

PES program, it is important to note that many policy makers at the international level have also, to varying degrees, strayed from the theoretical ideal type of PES by linking these programs with poverty alleviation initiatives, ignoring the goal of creation of markets, and/or challenging the basic underlying assumption that direct financial incentives alone will alter human behavior (McAfee & Shapiro 2010). When attempting to answer the question, "Is PES neoliberal?" it is therefore important to recognize that while the theoretical "ideal type" is based upon core neoliberal precepts, there is great complexity within and variance among the representations employed by the academics, policy makers, social movement leaders and program participants who promote or contest PES.

The neoliberal discourse of PES places strong emphasis on the failure of state-led initiatives to counter environmental degradation and the presupposed greater efficiency and effectiveness of market-led, or at least market-based, programs. Within the neoliberal philosophy, there is a definite role for state intervention in the formation of new markets. David Harvey (2005) says of neoliberal theory, "If markets do not exist (in areas such as land, water, education, health care, social security, of environmental pollution) then they must be created, by state action if necessary." (p. 2). However, it cannot escape notice that the great majority of PES initiatives around the world maintain a strong, if not exclusive, degree of intervention by the state and that, in most cases, markets have failed to materialize. As Sven Wunder, a strong proponent of the neoliberal vision of PES, concedes the majority of the PES initiatives in the global south are at best "market-like" (Wunder 2007, p. 50). This is certainly the case in Mexico, where six years after it was first implemented, the federal state remains the almost exclusive 'buyer' of the ecosystem service produced by participants in the national program and true markets, with discrete sellers and buyers, prices determined by supply and demand, and payments based on performance-dependent contracts.

Research Questions and Methods

I present more detailed descriptions of my questions and methods as they pertain in each chapter. However, I present here a basic overview to provide context for the following sections on theoretical framing and chapter overviews.

The overarching research question of my dissertation is: *How, by whom, and in what ways was the conception of payments for ecosystem services as originally theorized by neoclassical economists and promoted by neoliberal policy makers hybridized during the evolution of the Mexican national program?*

My analysis, as detailed in the chapters to follow, is based on a multi-sited ethnography of the Mexican national PES programs. I conducted the majority of fieldwork between October 2005 and July 2008, although ongoing research keeps me in contact with many of my original sources. The research can be described as having been situated at three scales, each of which entailed distinct approaches and methods:

International

At the international level, I conducted interviews with the actors who had provided intellectual support and/or funding for the Mexican national programs. These included officials from the

World Bank, Forest Trends, and the Ford Foundation as well as faculty members from the University of California, Berkeley. I also engaged, to some degree, in participant observation. I was employed as a consultant for the NGO Forest Trends from August 2006 to February 2008 during which time I edited and wrote for an e-newsletter focused on community-based PES. I also participated in an international meeting for practitioners in April of 2006 in Quito, Ecuador held by a coalition of international organizations including the IUCN, World Agroforestry Centre and Forest Trends, the purpose of which was to document "best practices" and the "state of play" for PES in Latin America. Much of the analysis at this scale is also based on analysis of project documents for the Mexican program or, more broadly, of PES promotional materials.

National

I conducted extensive (N=73) interviews with the actors primarily responsible for designing and implementing, or contesting the Mexican PES program. These included officials from the federal agency responsible for implementing the program (CONAFOR), officials from the World Bank Mexico office, Mexican academics, numerous heads of NGOs from throughout the country, and the leaders of the of the rural social movement El Campo no Aguanta Más. I also employed content analysis of project documents, websites, newspaper articles, meeting minutes and public speeches. And, as at the international level, I did employ some degree of participant observation, attending PES program design committee meetings at the CONAFOR headquarters in Mexico City.

Regional/Local

I conducted semi-structured interviews (N=102) with project participants in 32 rural communities in four Mexican states (Oaxaca, Guerrero, Colima and Jalisco), whose selection was stratified by: 1) the type of ecosystem service targeted (hydrological, carbon, biodiversity, or agroforestry); 2) the primary resource use strategy (agriculture vs. forestry); and property ownership type (private vs. collective). See Appendix 2 for a copy of the master guide for the community-level semi-structured interviews. I also conducted interviews with the NGOs and private consultants that provided technical assistance to these communities and with the regional-level CONAFOR staff responsible for implementing the PES program (N=73). I will discuss my sample design and the framing of the semi-structured interviews at greater length in Chapter 6. In terms of participant observation, I taught workshops on PES for indigenous health promoters with an NGO in Oaxaca, participated in a regional meetings held by CONAFOR intended to solicit feedback from program participants, and attended community-level *asambleas* during which the PES program was discussed. In two of the states, I was provided access to the annual reports that participants had been required to submit to CONAFOR and I have also analyzed these. I relied on national demographic and geographic databases for summary statistical data.

A Political Ecology Approach

I employ a political ecology approach to frame my research. Although it can be difficult to find a singular definition of political ecology, it is safe to say that it is an approach, a set of

questions, and a way of analyzing "environmental" issues that incorporates the political and economic motivations and results of human interactions with their environment. Peet and Watts (2004) say of early studies that, "Political ecology's originality resided in its efforts to integrate human and physical approaches to land degradation, though an explicitly theoretical approach to the ecological crisis capable of addressing diverse circumstances… and capable of accommodating both detailed local principles and general principles." (p. 7). I would add to this that the political ecology approach also increased the scale at which the human-nature interaction was studied, so that detailed local studies were combined with analyses of the larger political and economic context in which they occurred. My dissertation research can be considered to be "political ecology" because it adheres to three of the discipline's basic precepts: 1) to politicize environmental issues; 2) to challenge hegemonic environmental narratives; and 3) maintain and engaged scholarship.

Politicize Environmental Issues

At the most basic level, political ecology attempts to politicize the environment and environmental issues. As Bryant and Bailey (1997) contend, the central concept of political ecology, "is the recognition that environmental problems cannot be understood in isolation from the political and economic contexts in which they are created." (p. 28). They also claim that in analyzing the politicized environment, it is of course critical to have a clear definition of what 'politics' are and how they relate to the human interaction with the environment. In order to do so it is necessary to have, "1) an appreciation that politics is about the interaction of actors over environmental (an other) resources; 2) a recognition that even weak actors possess some power in the pursuit of their interests." (p. 24).

The early stages of the development of political ecology relied heavily on neo-Marxist theories of political economy. In early political ecology, the neo-Marxist analyses focused, not surprisingly, on class relations and larger structural forces and their relationship to environmental degradation. As Peet & Watts (2004) state, early theorists of political ecology, "were concerned to highlight politics and political economy – that is to say a sensitivity to the dynamics of differing forms of, and conflicts over, accumulation, property rights, and the disposition of surplus." (p. 6). Later political ecologists moved towards the creation of more subtle analyses of local actors and their politics and the way that these in turn interacted with larger political and economic forces to affect environmental interactions.

Gezon and Paulson (2004) state that an assumption of, "A global connectedness through which extralocal political economic processes shape and are influenced by local spaces," as one of the four founding concepts of political ecology." (p. 2). My research was designed to examine interactions (vs. one way flows) of influence in the context of a particular environmental policy. I incorporate interviews of actors at multiple scales, from the World Bank, to the leaders of national rural social movements, to the rural program participants into an analysis, not of the utter dominance of one over the other, but of the sometimes subtle and unexpected ways in which one has interacted with the other in the context of the federal PES program in Mexico.

Challenge Hegemonic Environmental Narratives

Early theorists in political ecology were in many ways motivated by the desire to counter such essentialist works as Paul Erlich's (1968) *Population Bomb* or Garret Hardin's (1968) *Tragedy of the Commons* which provided compelling but overly simplistic neo-Malthusian arguments that laid the blame for environmental degradation directly at the feet of poor resource users. Whether originally intentioned as such or not, these arguments were used as fodder in the justification of the expropriation of land, the privatization of the commons, as well as misguided resource conservation policies that often hurt the people they claimed to be helping. From Watts (1983), to Hecht (1985;1989) to Blaikie (1985), to Blaikie and Brookfield (1987), all attempted to bypass essentialist explanations of environmental degradation to expose the complex web of cause and effect created by multiple actors at multiple levels. As Blaikie (1985) says of the discourse and action surrounding soil erosion in Nepal, "There are widely differing political judgments involved, and many of these remain implicit and unexamined." (p. 1). Hecht (1985) lists the set of environmental narratives that she and other early political ecologists were attempting to counter as: neo-Malthusianism, Kuznit's curve, techno-fixes, tragedy of the commons, ecological models used for political purposes, environmental externalities, and dependency perspectives. Political ecologists, while agreeing with the basic premise of the mainstream sustainable development discourse – that poverty and environmental degradation are linked – challenge the depoliticized, centrist strain of this discourse by taking a good part of the onus for degradation off of the land manager and putting it back squarely onto the shoulders of the "development" leviathan and the its political and economic handlers (Peet & Watts 1996).

With its discussion of correcting environmental externalities through use of market-based mechanisms to incentivize resource managers who would otherwise degrade, PES as a "neoliberal project" can be seen as a top down, extra-local imposition of a particular conceptualization of nature and of the process of its degradation. Peck and Tickell (2002) have envisioned neoliberalism's venture into the realm of environmental and social policy, what they term the 'rollout phase', as accompanied by a massive change in neoliberalism's "scalar constitution" (p 391). As such, they call for studies that combine, "concrete and contingent analyses of (local) neoliberal strategies", but which are attentive to the, "Substantial connections and necessary characteristics of neoliberalism as an extralocal project." (p. 382). In my analysis of the Mexican national PES programs, I found that flow of ideas and influence to action went very much both ways, with rural social movements impacting the design of the national PES programs and the discursive practices of its overseers at the World Bank at the same time that the impacts of this 'extralocal' project were felt by rural participants.

Maintain an Engaged Scholarship

As Rocheleau describes in her review of current trends in political ecology, my research also works, "simultaneously to address multiple objectives and audiences." (2008, p. 718). While my dissertation research has been directed primarily by the goal of publishing for an academic audience, I have had as a secondary objective to directly influence the specific formation of PES policy in Mexico and elsewhere.

Within Mexico I was, and continue to be, actively engaged with community-based NGOs in the states where I worked and with the National Forestry Commission (CONAFOR), the federal agency implementing the PES programs. I have published in Spanish in the regional newsletter of one of the NGOs I worked with (Shapiro 2006) and plan to publish my final results in the *Gaceta Ecológica*, a widely read Mexican environmental policy journal, and as a pamphlet that will be distributed through the community-based NGOs with whom I worked. Since 2007, I have been involved in a collaboration with environmental economists from Amherst College and the University of San Francisco and the division at CONAFOR directly responsible for implementing the national PES programs to combine analysis of remote sensing data, household level surveys and interviews with key informants to determine the impacts of the PSA-H program on deforestation rates, household livelihood strategies and community-level environmental governance structures. Results from my dissertation research have been incorporated into the design and the results of this research.

During the course of my dissertation research, I also engaged in a significant level of "participant observation". From August 2006 to February 2008 I worked for the Washington DC-based NGO Forest Trends as the writer and editor of the Community Forum newsletter, published on the Ecosystem Marketplace website (Shapiro 2006-2008). Forest Trends has been one of the primary promoters of the development of markets for ecosystem services, organizing the Katoomba Group meetings, publishing numerous policy pieces and hosting the Ecosystem Marketplace website. Through these networks, I also participated in meetings in Quito, Ecuador sponsored by some of the primary organizations promoting the pro-poor PES discourse (Forest Trends, IUCN, ICRAF, GTZ, IRDC & UNDP) that brought together actors from throughout Latin America who were actively engaged in implementing PES programs with the intent of formulating policy pieces on the role of PES in poverty alleviation. My purpose in including this information here is simply to make the reader aware that I was, in a very small way, responsible for producing the discourse that I critique and that I remain actively engaged in attempting to influence PES-related policy. While I recognize that there has been significant critique of "engaged scholarship" in political ecology, it can also be argued that from Blaikie onward it has also played a significant role in the development in the field (Rocheleau 2008).

Theoretical Contributions

My dissertation research was not constructed as an attempt to find a case that fits a particular theory; rather my analysis applies the theory that seems to best explain what I have observed. Castree (2008) has described the "trinity" of theoretical influences on the neoliberalization of nature literature in geography as, "Polanyi, Marx, or eco-Marxists" (p. 139). Following in this vein, I have drawn primarily on the theories of Karl Polanyi and Antonio Gramsci, and the political ecologists who employ these theorists in their own analyses, in framing my understanding of the processes and specific impacts of Mexican national PES program.

I have framed the analysis of my research on the federal PES program in Mexico as a contestation over power, in that the process of policy formation was ultimately a struggle over who creates and who will capture the newly minted value of ecosystem services. This struggle

manifested as a contestation over meaning, but also over specific design elements of rural policies and grounded practice in rural areas.

As I will explain in more detail below, I employ Polanyi's theory of the double movement, the continuous, back-and-forth process through which the liberal economy attempts to disembed the market and "society" reacts to reembed, to frame my analysis of how intervention by actors at various levels within the institutional remnants of the developmentalist federal state in Mexico worked to alter the focus of the PES program from market-based conservation to poverty alleviation. Gramsci's more detailed theories of how hegemons and counter hegemons are constructed provides richness to the analysis above, and informs my examination of the ways in which rural social movements in Mexico successfully constructed a counter narrative that challenged implicit assumptions in the neoliberal construction of PES concerning the meaning and means of PES. Gramsci's theories of the ways in which these hegemons are constructed in the realm of the both the "extraordinary" and through everyday practice informs my examination of the ways in which the grounded management activities of program participants worked to further hybridize the meaning and ultimate impact of the national PES program.

To understand how similar processes of hybridization have occurred in other contexts, I have drawn from contemporary literature from a variety of fields. There is a growing body of work in economic and resource geography on the neoliberalization of nature and on hybrid neoliberalism that I have employed to provide reference for ways in which neoliberal projects, particularly environmental policy, have unfolded and evolved in other contexts.

Neoliberalization of Nature and Hybrid Neoliberalisms

Scholars have debated the usefulness of neoliberalism as an analytical category for understanding regulation of "nature" and political-economic change more broadly (McAfee 1999; Bakker 2005; Barnett 2005; Castree 2006; Larner 2003; Heynen and Robbins 2005; Peck 2004; McCarthy and Prudham 2004). Larner (2003) first critiqued geographers' liberal use of the term, while Barnett (2005) went even further, claiming that what these scholars identify as "hegemonic neoliberalism" is more likely just a, "muddled set of ad hoc, opportunistic accommodations to… unstable dynamics of social change." (p. 10). He and others have posited that, because of inconsistencies of the neoliberal project itself, the label itself becomes incoherent (Peck 2004; Barnett 2005). In order to better define both the theory and, "actually existing neoliberalism" (Brenner & Theodore 2002. P. 349), numerous authors have called for research on the connections between the discourses and ideologies of neoliberalism and its specific, local, contextualized manifestations (Larner 2003; Peck 2004; Braun 2006).

A number of authors have pointed to the difficulties introduced in these analyses because the configuration of "actual" neoliberal projects is highly dependent on the historical and political context onto which the philosophical ideal of neoliberalism is imposed. As Brenner and Theodore (2002) have said, "An adequate understanding of actually existing neoliberalism must therefore explore the path-dependent, contextually specific interactions between inherited regulatory landscapes and emergent neoliberal, market-oriented restructuring projects at a broad range of geographical scales." (p. 549). Following this dictum, there is a small but very strong literature on 'hybrid' neoliberalism, which questions the linear causality of much of the previous scholarship, focusing instead on the process by which specific

neoliberal projects to commodify or privatize "nature" are mutated through their encounters with the entrenched political, cultural or biophysical characteristics of the systems they are attempting to remake (Mansfield 2004; Robertson 2004; Bakker 2005, Mansfield 2007, Robertson 2007, McCarthy 2005). As Mansfield (2004) says of her study of the privatization of north Pacific fisheries, "The contribution of this article is that it avoids treating neoliberalism as an unchanging force that is applied in different contexts, but instead treats it as a highly variant outcome of conflict and the political process." (p. 556). I draw on this approach to map the multiple sites and means of contestation that in the end altered PES in Mexico from neoliberal notion to state-led, rural development dogma.

Other authors have pointed to the specific hazards involved in attempting to analyze such an unevenly distributed, complexly constituted project as neoliberalism and offer guidance for potential pitfalls (Brenner and Theodore 2002; Heynen et al. 2007). Peck and Tickell (2002) stress, as Polanyi did, that (neo)liberalism is a "process, not an end-state" (p 383), and one that is particularly able to adapt to and mold itself in response to changing conditions or patterns. Given neoliberal policy maker's ability to adapt, these scholars call for analyses that focus on the process of change itself, "between sites of incorporation and imposition" (Ibid, p 392), instead of on the static binaries of the before and after states.

I took all of this advice into account in formulating my analysis of the Mexican federal PES programs as neoliberalizations of nature, attempting to view the programs as ever evolving works in progress that were open to multiple sites of articulation, contestation and, ultimately, hybridization.

PES as a Fictitious Commodity

Polanyi's theory of "fictitious commodities", and its application and development by subsequent scholars, provides important context for the underlying processes at work in the attempt to commodify ecosystem services and begins to provide an explanation why the attempt, at least in Mexico, has all but failed.

The Oxford English Dictionary (1989) provides the standard definition of a commodity; "A kind of thing produced for use or sale, an article of commerce, an object of trade." Marx's analysis posited that capitalist commodification involved the transformation of social relations into exchangeable things, or commodities that, "are nothing but an alien and displaced form of social labour." (Castree 2003, p. 278). Polanyi (1944), building on Marx, worked to better define the process and rationale of commodification by explaining that, within the liberal philosophy of self-regulating markets,

> "Production is the interaction of man and nature; if this process is to be organized through a self-regulating mechanism of barter and exchange, then man and nature must be brought into its orbit; they must be subject to supply and demand, that is, be dealt with as commodities, as goods produced for sale." (p. 136).

Polanyi goes on to say that the commodification of, "all elements of industry, including labor, land and money," is part of a process through which all aspects of society are subordinated to the market, since, "a market economy can exist only in a market society." (1944, p. 74).

However, difficulties arise when these three "elements" are in that they have not specifically been "produced for sale." (Ibid, p. 75). Instead,

> "Labor is only another name for a human activity which goes with life itself, which in turn is not produced for sale but for entirely different reasons, nor can that activity be detached from the rest of life, be stored or mobilized; land is only another name for nature, which is not produced by man; actual money, finally, is merely a token of purchasing power which, as a rule, is not produced at all, but comes into being through the mechanism of banking or state finance." (Ibid, p. 75)

Polanyi goes on to discuss the fact that no society, or market for that matter, could stand the "crude fictions" of a system that had fully commodified labor, land and money, that societal checks are needed to balance out the potential, "ravages of this satanic mill." (Ibid, p. 77). This process, by which the civil society and the state work to reembed "society" into the supposedly self-functioning market, is known as the theory of the double movement.

Contemporary scholars have applied and expanded Polanyi's theories of fictitious commodities in a number of ways relevant to understanding the phenomena of PES. The term "commoditization", widely used by economic geographers, internalizes the concept of fictitious commodities, implicitly highlighting, "the fact that the commodity status of a thing, object, idea, creature, person or what-have-you is not intrinsic to it but, rather, assigned." (Castree 2003, p. 277). Other scholars have directly employed the concept of fictitious commodities to the issues surrounding market-based environmental policy and initiatives. In his critique for the Socialist Register, Neil Smith (2007) portrays 'green capitalism', from wetlands banking to ecotourism, as a new accumulation strategy, that has, "Considerably transformed the social relationship with nature." (p. 16). While traditional commodities could be extracted as raw materials, ecological commodities, "are simultaneously excavated (in exchange-value terms) from pre-existing socio-natural relations and as part of their production they are reinserted or remain embedded in socialized nature - the more 'natural' the better." (Ibid, p. 16). Martin O'Connor (1997) also argues for the social embeddedness of theorized environmental externalities such as ecosystem services, that "the 'value' of external nature depends not only on market demand and ground rent but also on the class struggle in general and the environmental struggle pertaining to the ways that nature may or may not be legally or legitimately used in particular." (p. 147).

The Double Movement

As will be discussed more thoroughly in Chapters 3 and 4, one of the conclusions of my dissertation is that the that neoliberal conceptions of market-efficient conservation held by the original designers of the national PES programs were hybridized through interaction with Mexican federal politics and institutions to become federal subsidies for rural poverty alleviation.

Polanyi's theory of the 'double movement' is helpful in understanding the process by which state or civil society entities intervene in both freeing markets and in countering their environmental and social costs. The theory of the double movement posits that the institution

of economically liberal policies requires not only the move to deregulate and down size state function, "the institutional separation of society into and economic and a political sphere" (Polanyi 1944, p. 74), thus 'freeing' the market, but also a secondary movement aimed at protecting and 'reembedding' that which was most likely to be hurt by open markets, "man and nature as well as productive organization." (Ibid, p. 138). However, though he is rather vague about what these secondary movement will be, he theorized that they would require significant intervention by the state itself, "Using protective legislation, restrictive associations, and other instruments of intervention as its methods." (Ibid, p. 138). Although separate from his theory of the double movement, Polanyi theorizes further about the role of the state in regulating markets themselves, saying that, "There was nothing natural about laissez-faire; free markets could never have come into being merely by allowing things to take their course… Laissez-faire was not a methods to achieve a thing; it was the thing to be achieved." (Ibid, p. 145)

A number of scholars of neoliberalism have applied Polanyi's theory of the double movement to understanding more recent, "neo" liberal political projects that work under the guise of 'freeing markets' and the rolling back of state power and institutions while consequently or subsequently introducing new forms of, mostly, state regulation. These types of secondary neoliberal projects aimed at re-regulation have been labeled variously 'roll-out' or 'inclusive' neoliberalism. While I do not dispute that neoliberal philosophy dominates political discourse around the globe, nor that neoliberal thinkers and politicians are quick to appropriate and incorporate counter discourses, my analysis of the evolution of the Mexican national PES programs tells a tale that closely aligns with Polanyi's theories of the double movement, one in which the power relations and causes of these adaptations are much more complex and two-way, at times originating from the state and at others from the grassroots up.

Counterhegemonic Narratives of Rural Social Movements

While Polanyi went far in describing the theory of the double movement, he did not provide explicit details about how the process itself would work or what the results would likely be. Antonio Gramsci provides a much more detailed theory of the processes of articulation and contestation and the role of power relations in these processes. My dissertation argues that, in the case of the Mexican national PES programs, the neoliberal notion of PES, and of the conception of the "production" of ecosystem services as socially disembedded, was also hybridized through the discursive practices and active contestations of rural social movements. These actors brought to the table a conception of the strong and necessary interlinkages between human management and healthy ecosystems that was to have a profound effect on PES policy and policy makers.

Scholars exploring the ways in which power relations influence projects of 'green capitalism' such as market-based conservation have drawn extensively on Gramsci (Ekers et al. 2009; Karriem 2009; Asher & Ojeda 2009). Gramsci's concept of hegemony is a particularly useful construct for analyzing, as I attempt to do, how the discursive practices of multiple actors at multiple scales combine to create at least semi-cohesive narratives. As Ekers et al. (2009) have said,

> "Hegemony is not a singular project even if hegemonic projects consist of attempts to achieve some type of universalism. The manner in which a wide-

> range of popular, philosophical, economic, and cultural phenomenon are articulated together in a hegemonic project illuminates the multiple axes through which hegemonic struggles are waged." (p. 289).

But hegemony, and 'counter hegemons' can be built not only through discourse, but also through practice. In his study of the MST's counter hegemonic practices in Brazil, Karriem (2009) says that, "In line with a Gramscian political ecology perspective, the MST has not only remained at the level of protest; it promotes practical alternatives by encouraging agro-ecological methods of agriculture that respect the environment and the production of seeds that maintain biodiversity." (p. 322). Similarly, rural social movements in Mexico managed to insert a number of policy elements into the structure of the Mexican national PES programs that dealt with very specific, grounded practice, altering it from a program that embodied the concept of *campesinos* as potentially destructive actors who must be bribed in order not to deforest to one that recognized the important societal and environmental role of traditional rural stewardship and supported it's continuance through financing and technical and organizational support.

There is a small but growing literature on rural social movements that adopt and hybridize the discourse of international environmental movements. Martinez-Alier (1995) pointed out that, "There is at first sight a great distance between local movements and global issues. However, if we look a the defense of agricultural biodiversity…we notice an interesting phenomena: the use of global environmental ideas for local fights." (p. 88). While a number of authors have demonstrated the power of grass roots organizations articulating environmental and agrarian discourse to promote shared agendas in Indonesia (Peluso et al. 2008) and Brazil (Cullen et al. 2005; Karriem 2008), this blending does not always lead to a harmonious evolution as rhetoric evolves to practice. As Peluso et al. (2008) observed in the case of Indonesia, the confluence and conflicts between environmental and agrarian movements in Mexico, while certainly being influenced by transnational forces, also very clearly has home grown roots whose development is tied to the particular regional political economic and environmental history. In Chapter 5, I explore the specific process by which Mexican social movements have hybridized both the discourse and the practices of international environmental movements, what the Mexican scholar Enrique Leff refers to as a process of, "environmental mestizaje" (2002) and Victor Toledo as, "ecological neo-Zapatismo" (2006, p. 3).

I believe that in mapping the evolution of the Mexican national PES program we can begin to see how, in this particular place and time, rural social movements employed PES as a "useful surface of engagement" (Escobar 1999, p. 13), as a site of contestation with the federal state, international lending institutions and conservation NGOs. My research demonstrates that the social movements in Mexico effectively adopted and 'hybridized' PES as a rhetorical and conceptual counter hegemonic tool to effectively capture the "value", fictitious or otherwise, produced through the national PES program.

Local Level Perceptions and Practices

Hybridization of 'natures' and the construction of counter hegemons can also be enacted through the grounded practices of environmental management. Gramsci recognizes that

successful hegemons must be produced through both rhetoric in the realm of the extraordinary and through the everyday (Ekers et al. 2009).

As shall be discussed more thoroughly in Chapter 6, in the interviews I conducted in thirty-two of the rural communities in which the Mexican national PES programs has been implemented, it quickly became clear that, in all but a few cases, program participants viewed the funds they received, not as a payment for commodities produced, but as a subsidy from the government that recognized their valuable contribution of their active environmental stewardship to the national welfare. However, they understood the PES program as a financial reward for good stewardship not because they were reproducing a discourse imposed by rural social movement or the federal government, but because the conceptual basis for these discursive constructs of PES had originated from the rural upward. The concept of separate, fungible units of the "environment" that could be traded as ecosystem services, was indeed "fictitious" to the participants themselves. As Redclift (1992) states, "To most poor people in rural areas, for whom daily contact with the environment is taken for granted, it is difficult, if not impossible to separate the management of production from the management of the environment, and both form a part of the livelihood strategy of a household or group." (p. 36). It precisely this conception - of inextricable bond between active human management with environmental health and the subsequent ties of the these two with rural human health, identities and cultures - that was so powerfully woven into the discursive practices of the rural social movements.

This conception of the social construction of "nature", and, by proxy, of ecosystem services, was powerfully reflected and reproduced in the realm of local-level practice. As Dove says in relation to shade management practices in Pakistan, "The most quotidian resource practices may have profound political implications; that environmental knowledge is often (if not always) partisan knowledge; and that cultural meaning cannot be divorced from political-economic dynamics." (Dove 2004, p. 218). In accordance with the understanding of the programs intention as recognizing and subsidizing stewardship, I found that a very high proportion of these communities used the payments to reinvest in environmental management activities. This is not to deny that the process of hybridization is mutually constituted. Rural program participants and their representatives did, at least to some extent, also adopt the rhetoric of ecosystem services as commodities with externally assigned values. In Chapter 6, I discuss in great detail the process through which these hybrid practices were produced and acted upon at the local level.

Overview of Chapters

The following are brief descriptions of the content of each of this dissertation's chapters.

Chapter 2 – Evolution of the Mexican National Payments for Ecosystem Services Program

The specific evolution of the Mexican federal PES policy from its conception in 2003 through the end of 2009 is detailed. The chapter focuses on the actors involved and the changes over time in policy design and targeting.

Chapter 3 – The Federal Politics of Rural Poverty Alleviation in Mexico

This chapter provides an overview of the history of the federal politics of rural poverty alleviation in Mexico with a particular focus on the last thirty years and on current conditions. The second section details the very specific ways in which the progressive leanings of federal bureaucrats and the desire of a new president to appear populist influenced the specific conformation of PES policy and moved it away from a market-based instrument for conservation towards a federal subsidy for rural poverty alleviation.

Chapter 4 – The Institutional Context of Ecosystem Services

The first section of this chapter provides an overview of the ways in which neoliberal reforms in Mexico have either privatized or devolved control of land and natural resources to the local or regional level, while at the same time to a degree left them under federal jurisdiction. The second section details the way in which the federal institutions that regulate the ecosystem targeted by the national PES program (e.g. forests) and the ecosystem services themselves (e.g. water, sequestered carbon, biodiversity and agroforestry systems) have worked to undermine many of the original intentions of the program designers to devolve control of the program to local or regional-level governance, to make the policy "market-like", and to stimulate the creation of actual markets for ecosystem services.

Chapter 5 – Intervention of Rural Social Movements

The first section of this chapter provides a summary of the history of the role of rural social movements in influencing federal politics in and in ameliorating some of the impacts of the withdrawal of the state in the last thirty years from direct rural intervention is provided. The second section discusses the ways in which the rural social movement *Movimiento el Campo no Aguanta Más* (MECNAM), in protesting the first iteration of the Mexican national PES program in then in designing the second, introduced a distinct narrative framing PES as a recognition of the environmental value of traditional rural stewardship that significantly transformed both PES policy and the policy makers.

Chapter 6 – The Grounded Practices of Project Participants

The first section provides and overview of the ways in which agrarian policy in Mexico combined with national and international economic trends have impacted rural lives and livelihoods. Part two details research design and methods at the local level. The last section of this chapter summarizes my findings concerning the ways in which the grounded environmental practices of project participants interacted with and ultimately altered both the meaning and the means of the national PES program.

Chapter 2

Evolution of the Mexican National Payments for Ecosystem Services Program

Introduction

As will be discussed in greater detail in the chapters to follow, the Mexican national PES program has evolved considerably since its inception in both its structure and its intent. In this chapter, we will review, chronologically, the evolution of the program, the actors involved and the details of the policy design. It should serve to provide basic background information for the chapters to come, which focus more on the specific ways that the program was altered as it articulated with or was contested by various institutions and actors.

Figure 2.1 presents a graphic illustration of the three phases of the program evolution between 2003 and 2008. The conception of the original designers of the PES programs was of a market-like arrangement that would increase the amount and efficiency of conservation funding in Mexico, decentralize federal control, and support individual property rights. In *Phase 1*, during the design and implementation of PSA-H, the program's conservation-first and market-efficiency criteria were partially altered by federal agencies. During *Phase 2*, *campesino* movements and their NGO allies challenged the federal agencies responsible for the PSA-H program with a different conception of the purpose and potential of PES. Employing a rhetoric of revaluing the countryside and compensation for ecosystem services, they called for revised PES eligibility criteria, more state support, and greater control of project activities by *campesino* communities. The PES program that resulted, PSA-CABSA, was a hybrid of market-like conservation measures, state supervision, directed community planning, and rural development priorities. In *Phase 3*, the federal state retreated from its tentative and conflicted engagement with rural social movements. However, many project criteria that violate market-efficiency principles have been retained over the objections of World Bank advisors. At the same time, funding and political support increased as the executive branch began to employ the PES program as proof of its commitment to both rural poverty alleviation and international environmental goals.

Figure 2.1. Chronology of the evolution of the Mexican national payment for ecosystem services (PES) programs including the actors groups (*in italics*) involved in each major advance* (adapted from McAfee and Shapiro 2010).

		International Actors	Mexican Federal State	Rural Social Movements
PHASE 1	2000	**Strategic Forestry Plan 2025 calls for PES program**		
	2001	*Finnish govt. & IADB*	*SEMARNAT*	
	2002	**PES pilot program designed**		**MECNAM coalition**
		Economists from World Bank & Univ. of California, Berkeley	*National Ecology Institute (INE)*	*12 rural organizations & leftist political parties*
	2003		**PSA-H program implemented** *National Forestry Commission (CONAFOR) with INE design team*	**Agreement with the Countryside (ANC) promises new PES program** *Executive branch to MECNAM*
PHASE 2	2004		**PSA-CABSA program implemented**	
	2005		*CONAFOR, INE, SEMARNAT, & CNA*	*MECNAM Reps. (CNOC, CEPCO, Red-MOCAF, UNOFOC, SAO, UNORCA)*
PHASE 3	2006	**Loan & grant to expand & marketize PES programs** *World Bank & GEF*	**PES programs merged into PROÁRBOL** *CONAFOR*	**MECNAM reps. removed from PSA-CABSA committee** *CONAFOR to MECNAM*
	2007		**Funding for PES quadrupled** *Executive branch to CONAFOR*	
	2008	**World Bank Forest Carbon Fund grant to develop REDD protocol**		
		World Bank	*CONAFOR*	

* See Appendix 1 for a list of acronyms and their meanings.

The following section details the scope and scale of the PES program, how the policy structure has evolved over time and the actors involved at the various stages of its evolution.

The Evolution of National Level Payment for Ecosystem Services in Mexico

Although Costa Rica's PES programs have received more attention, Mexico was also an early testing ground. Some of the better known of these are the Scolél Te project in Chiapas, one of the earliest and largest forest-based program to tap into the voluntary carbon market, and the municipal-level, water-based scheme in Coatepec, Veracruz (Burstein, 2002; Brown, 2003). The largest and most elaborate PES program in Mexico to date, however, comprises two federally funded projects: the *Payment for Ecosystem Services–Hydrological* (PSA-H) and the *Program for the Development of Markets for the Ecosystem Services of Carbon Sequestration, the Derivatives of Biodiversity, and to Promote the Introduction and Improvement of Agroforestry Systems* (PSA-CABSA). Both programs are administered by the Mexican

National Forestry Commission (CONAFOR). Between 2003 and 2009, approximately 2.27 million hectares of forested land were entered into the program and more than US$360 million[2] in Mexican federal funds were distributed to 4,893 communal or small holder private property participants (CONAFOR 2009) (See Table 2.1).

Table 2.1. Participation, funding & land area for PSA-H y PSA-CABSA, 2003-2008 (From McAfee & Shapiro 2010)

Year	*Number participants***			*Total funding allocated (US$)****			*Total hectares added*		
	PSA-H	**PSA-CABSA**	**Pilot**	**PSA-H**	**PSA-CABSA**	**Pilot**	**PSA-H**	**PSA-CABSA**	**Pilot**
2003	272	---	---	$16,943,371	---	---	126,818	---	---
2004	352	17	209	$25,903,676	$8,750,401	$4,316,861	184,240	31,448	537,293
2005	257	25	20	$23,186,700	$4,720,500	$314,959	169,031	26,989	20,434
2006*	241	24	50	$18,360,233	$2,066,155	$436,497	127,016	18,876	66,459
2007	627	155	463	$64,959,239	$90,590,194	$2,517,552	424,515	64,835	251,483
2008	727	381	3	$59,652,999	$27,463,419	$50,408	324,155	130,736	6,165
Total	**2,476**	**602**	**745**	**$209,006,218**	**$133,590,669**	**$7,636,277**	**1,355,775**	**272,844**	**881,834**

* In 2006, the PSA-H and PSA-CABSA programs were consolidated under the rubric of the larger PROÁRBOL program. We keep them separate here to demonstrate the relative support given to payment for hydrological vs. other ecosystem services.
** "Participants" can be individuals, *núcleos agrarios*, or associations (e.g. producer cooperatives, NGOs, etc.)
*** Funding is intended to cover all annual payments for that year's cohort of participants for the full 5 years of the program.
*** For 2004-2006 PSA-CABSA provided payment for one-year pilot projects. In 2007 PSA-H began to fund pilot projects as well.

Mexico's federal programs are the largest of only four other national-level PES schemes in the world, the others being Costa Rica's national PES program, China's Sloping Land Conversion Program, and the Conservation Reserve Program in the United States (Sanchez Azofeifa et al. 2007; Bennett 2008). Largely on the strength of the "success" of the PES programs, Mexico was recently chosen as one of only fourteen countries in the world to participate in the pilot phase of the World Bank's Forest Carbon Partnership Facility, a program designed to prepare countries in the global south to enter forest-based carbon offset markets (World Bank 2007; Wroughton 2008).

Creation of a national PES program in Mexico was first discussed by a federal climate-change working group between 1995 and 2000 (Alix-Garcia 2005). PES appeared for the first time as a concrete proposal in the Strategic Forestry Program 2025, a product of a 2000-2001 collaborative planning group made up of actors from the Inter-American Development Bank (IADB), the Finnish government and the Mexican Secretariat for the Environment and Natural Resources (SEMARNAT) (CONAFOR 2002). The proposal notes that Mexico's diverse and extensive forests offer enormous potential for carbon sequestration and a "comparative advantage" for biodiversity prospecting given the diversity and extent of its forests. However, this formative document, anchored by the conceptualization of PES as a market-based

[2] I use a conversion rate of 0.09 Mexican pesos/US dollar, the approximate average exchange rate for the time period (2003-2009) discussed.

conservation solution, makes little mention of likely socioeconomic effects.

Though responsibility for actually implementing the national PES program was assigned to the National Forestry Commission (CONAFOR), the task of program design was given to the Department of Policy and Environmental Economics at the National Institute of Ecology (INE), a federal environmental research agency. INE's design team included INE staff and economists from the Mexican Universidad Iberoamerican and Centro de Estudios y Docenia Económica and from the University of California, Berkeley (Alix-Garcia 2005). The World Bank was involved in an advisory capacity, funding early data gathering and evaluation. The Bank's Mexican office also formed an advisory committee of academics and representatives from environmental NGOs, foundations, and municipal officials with PES experience, but the committee had little direct impact on policy formation (Muñoz-Piña 2008).

In Phase 1 of the PES program evolution, the INE design team proposed a two-year pilot project implemented by a non-profit organization or academic institution. The proposal for the pilot project was accepted by SEMARNAT at the end of 2001 and US$2 million was designated for its implementation. However, when the funding for the pilot project was later cut, CONAFOR decided to forgo the pilot and being project implementation in 2003 (Alix-Garcia 2005). This left CONAFOR with very little time in which to implement a national-scale PES program, leaving them with little ability to complete a through and transparent participant selection process, relying instead on their regional office's network of existing contacts. Though CONAFOR introduced transparent and standardized selection criteria for later iterations of PSA-H, the program has a reputation in Mexico's forestry as CONAFOR's "corporatist handout" (Interview June 11, 2007).

The final form of the PSA-H policy was a medley of market-like mechanisms, strong federal control, and site selection based on both conservation and poverty-alleviation criteria. Three criteria were finally selected as requirement for entering the program. The first was that parcels were to be smaller than 4,000 ha, which limited the participation to small to medium-sized land holders, and with more than 80% canopy cover, a number chosen rather arbitrarily and later changed to 50% when it was realized the much of Mexico's native forest cover naturally has less. The second criteria was that participating sites be located upstream from population centers of greater than 5,000 to ensure that there would be "demand" for the hydrological services produced. The third criteria was that projects be situated either in the recharge zones for overexploited aquifers, also meant to ensure demand, in protected areas, which contradicted the original precept of targeting to the program to areas with high risk of deforestation but satisfied SEMARNAT's need to fund their parks, or on a priority mountain, which, as will be discussed more thoroughly in Chapter 4, satisfied an international agreement concerning the protection of mountainous areas. Using these last two criteria CONAFOR mapped "Eligible Zones" and posted the maps on its web site.

Five-year contracts were signed and payments were made annually after verification by satellite image or a ground visit that none of the enrolled land had been cleared. Where clearing was detected those hectares were removed from the program and payments reduced proportionally. Payment rates were based on a study by a U.S. academic consultant of the calculated average opportunity cost of land conversion from forest to maize crops. Payments were set at US$36.40 per hectare/year for cloud forest, which was thought to be better at producing water infiltration and purification services, and US$27.30 per hectare/year for other

forest types.[3] Importantly, only forest conservation, with no type of active land management, was allowed. This last stipulation was soon challenged by social-movement activists and was reversed in the PES program's second phase, as will be described in more detail in Chapter 5.

In Phase 2 of the evolution of the federal programs, a second federal PES program, PSA-CABSA, was launched in 2004, a year after the PSA-H program began. It was the outcome of intervention by nongovernmental organizations advocating on behalf of indigenous and other rural communities. After a series of long and contentious negotiations which will be described in more detail in Chapter 5, a design team made up of representatives from the rural social movements, CONAFOR and other government agencies developed a very complex set of payment options (See Table 2.2).

Table 2.2. Payment Rates and Schedule Under the 2004 PSA-CABSA Program (From McAfee & Shapiro 2010)

Pilot projects (1 year)	Up to US$36,000: 60 % up front, 40 % after annual project verification
Project execution (5 years)	Will be made in 5 annual payments
1) Carbon Sequestration	US$45/ton CO2e +US$0.11/ unit of social/ environmental benefit
2) Biodiversity conservation	Up to US$45,000/ project/year, including costs of technical assistance
3) Conversion to agroforestry	Up to US$90/ha/year
4) Improvement of existing agroforestry systems	Up to US$36/ha/year and up to US$45/ha/year if certified organic
Technical assistance for projects in execution	5 annual payments: 60 percent up-front , 40 percent after year-end verification
1) Verification of ecosystem services produced	Up to US$13,500/year
2) Training of extensionists	Up to US$13,500/year
3) Technical assistance	Up to US$22,500/year; more for biodiversity conservation projects

During Phase 3 of the evolution of the programs, CONAFOR consolidated PSA-H, PSA-CABSA, and several other programs under the rubric of a single program, *ProÁrbol* in 2006 (See Table 2.3). Although the policy change was ostensibly motivated by a desire to streamline administration, the move also very conveniently pushed out rural social movement leaders from positions of direct oversight. Even so, many of the policy changes introduced by the social movement activists, such as requirements for the development of an active management plan and funding for pilot projects, technical assistance and local capacity building were maintained under the new program guidelines (McAfee & Shapiro 2010).

[3] To provide context, at the time the national minimum wage was set at US$9/day (MX$101.22/day).

Table 2.3. Design of the PSA-H and PSA-CABSA programs under the 2007 ProÁrbol rules (From McAfee & Shapiro 2010)

Project type	Payment*	Allowable land area (hectares)	Payment schedule
Hydrological	Cloud forest = MX$860/ha/year Other forest types = MX$658/ha/year	Min. 20 Max. 3,000	Up to five consecutive years of support
Carbon Sequestration	80/ ha	Min. 500 Max. 3,000	Up to five consecutive years of support for land areas with maintained forest cover or reforestation
Biodiversity Conservation	6.5/ ha/ year	Min. 20 Max. 2,000	Up to five consecutive years of support
Agroforestry Systems with shade-grown crops	MX$658/ ha/ year, including the cost of verification	Min. 200 Max. 1,000	Up to five consecutive years of support
Project Development and Promotion	Up to 4,200 per project	Depends on project type	50% of funds are distributed at beginning of project and 50% when the committee approves the project. 30% of funds must be dedicated to the development of market-based payment or compensation mechanisms (e.g. development of adequate monitoring systems)
Heritage Fund for the Conservation of Biodiversity	4/ha/ year	Min. 20 Max. 2,000	Funding for this program is derived from the interest generated by the Heritage Fund for Biodiversity Conservation established through the World Bank loan no. 7375-ME. It is will be used to fund only those land areas with identified presence of biodiversity of global importance.

* Payment rates were for 2007 expressed in equivalents to one day of labor at federal minimum wage. At the time minimum wage in Mexico was =MX$101.22/day

Funding for the PES programs has come entirely from the Mexican federal government, albeit with an infusion of a US$45 million loan from the World Bank and a US$15 million grant from the Global Environment Facility (GEF) in 2007 that meant to foster the development of true markets for the ecosystem services produced.

Conclusion

This chapter has provided an overview of the structure of the Mexican federal PES programs and how they have evolved over time. The chapters to follow analyze how differences in the analytic frameworks, discursive constructs and goals of Northern-based economists, ecologists, World Bank consultants, Mexican state ministries and environmental research institutes, activist NGOs, and *campesino* associations have been reflected in the PES program's evolving structure and criteria for success. In the following chapter, we will examine the ways in which the social conscience of the bureaucrats who designed and implemented the PES programs and the federal-level politics of rural poverty alleviation incrementally altered the program's design and targeting away from the formation of true markets or market-like policy instruments and towards becoming a federal subsidy.

Chapter 3

The Federal Politics of Rural Poverty Alleviation in Mexico

Introduction

Among policy makers and academics who promote the neoliberal logic of PES as a market-efficient conservation solution, any attempt to link these programs with poverty alleviation only weakens the ultimate goal. As Wunder (2007, p 53) states,

> "It seems certain that neither the community that fully safeguards its environment nor the impoverished farmer… will emerge on the scene as major sellers of [ecosystem services]. These groups do not constitute a credible threat, so paying them creates zero additionality…The ideal seller of [ecosystem services] is, if not outright environmentally nasty, then is at least on the edge of becoming so."

Contrary to this vision of PES, as a market-efficient conservation mechanism, that was espoused by World Bank and other international advisers, this chapter begins by detailing the way in which the original designers of the PSA-H program attempted to include policy mechanisms to target poor, rural landholders. The second section of this chapter examines the ways in which the PES programs, as they have evolved, been in even greater part hijacked by the executive branch of the Mexican government in the name of rural poverty alleviation and the political capital it brings.

The Politics of Rural Poverty in Mexico

The history of the politics of rural poverty alleviation in Mexico is filled with stories of broken promises. The 1857 constitution, representing the liberal views of reformers such a Benito Juárez, called for the redistribution of land through the privatization of Church and indigenous lands. The result was the redistribution of these lands into the hands of large *hacienda* owners and a consolidation of their power. As a result, an estimated 92% of the population was landless by the end of Porfirio Díaz' regime in 1910 (Barry 1995). A central impetus for the Revolution of 1910 was land redistribution and agrarian reform. *Campesino* movements, lead by Emiliano Zapata and Pancho Villa, fought for and then against successive waves of national leaders and leadership. These leaders would use the *campesino*'s military and political power, but refused to recognize their demands. In 1911, Zapata issued the "Plan of Ayala", a radical political platform that called for *campesino* self-government and land reform. In response, the national leadership incorporated Article 27 into the constitution of 1917, giving the Mexican government the right of eminent domain, opening the possibility, but not the promise, of agrarian land redistribution (Barry 1995). From 1917 – 1934, *hacienda* land was redistributed to *campesino* and indigenous communities in the form of *ejidos*, but it was consistently the poorest land, with the potential for subsistence but not commercial production.

In 1934-1940, under the administration of president Lazaro Cardenas, agrarian reform truly got underway, with the redistribution to the *ejidos* of 20 million hectares of prime agricultural land, much of it suitable for commercial production (Barry 1995). The *ejidos* also gained political strength through the formation of the National Federation of Campesinos (CNC) and access to credit through the Ejido Bank (Hellman 1994). From the end of Cardenas' term in 1940 through the 1970s, agrarian development continued to be supported by the national government, but with the main, import substitutions objective of feeding industrial growth and producing secondary revenues from agroexports. In the early 1970's, a second strong surge of agrarian reform led to a distribution of federal lands that resulted in approximately 65% of forested lands being communally held (Merino-Pérez & Segura-Warnholtz 2005). Though the *ejido* system never fully lost support, increasing emphasis began to be placed on modernization and agro-industrialization of private commercial ventures.

In 1982, occasioned primarily by a global crash in petroleum prices, Mexico experienced an extreme economic crisis and a virtual default on its foreign debt. The World Bank and the International Monetary Fund (IMF) offered substantial loans with the contingency that Mexico would restructure its economy, moving away from inward-looking development, import substitution and big government to policies of trade liberalization and deregulation. Between 1980-1991, Mexico received a total of 13 structural and sectoral adjustment loans from the World Bank, more than any other country (Barry 1995). The accompanying reforms included investment deregulation, the eclipse of import substitution policies, sales of publicly-owned enterprises, elimination of government marketing agencies for coffee and other primary products, and substantial reductions in price supports (Fox 2000; Liverman and Vilas 2006). Mexico has since been characterized as an exemplar of neoliberal reform, a "model for the rollback of state intervention" and one of the most promising of the "new globalizers" (Fox 1995, 3; Collier and Dollar 2002, 35).

In the agrarian sector, economic restructuring was marked by the removal of tariffs and import permits for agricultural goods, the end of agricultural subsidies and the dismantling of state-run agricultural institutions. The 1992 privatization of communal *ejido* lands and the ratification of NAFTA in 1992, with its policies of gradual elimination of all agricultural trade barriers or price supports are all signs that México is in the midst of an era in which neoliberal economic strategy dominates in agrarian, as well as most other, policy. Beginning in 1994 NAFTA-required tariff cuts facilitated increased food imports. The consequent contraction of domestic market prices for corn, beans, and livestock, along with cuts in state support for smallholder agriculture, made traditional rural subsistence and commerce increasingly difficult and exacerbated the polarizing consequences of Mexico's second major debt crisis and drastic currency devaluation in 1994.

Vestiges of the developmentalist state do remain in the form of constitutional limitations and bureaucratic control. However, after this period of "structural adjustment", what aid was given to small producers came in the form of financial assistance, "designed to replace market-distorting, output-based subsides while simultaneously cushioning farmers during the transition to free trade," (Keleman 2010, p. 19) as opposed to direct or indirect support for agricultural development. National subsidies for "subsistence production" that had grown at and average annual rate of 12.5% during the 1970s, began to decrease at an average annual rate of 13% during the 1980s (Lara Flores 1996). As Barry (1995) explains, "The objective of recent rural development projects in the Mexican countryside is more to stave off rapid

deterioration in social welfare and resulting political instability than to promote broad-based development." (p.44). Although the state has largely withdrawn from rural development, it maintains patronage and a degree of political control through "social liberal" or "inclusive neoliberal" programs (Fox 1995; Craig and Porter 2006). PROCAMPO replaces production subsidies with per-hectare payments to grain producers. PROGRESA pays mothers to ensure school attendance and child health check-ups. PROCEDE maps the external and internal boundaries of *núcleos agrarios* as a step toward privatization. The national PES programs have themselves evolved into another "PRO" anti-poverty program: PROÁRBOL.

During this same period, from the 1970s to the present, Mexico has undergone a slow process of democratization. From 1929 to 2000, Mexican politics were dominated at all levels by the corporatist rule of the Partido Revolutionario Institutional (PRI – Institutionalized Revolutionary Party). This dominance translated into pervasive, authoritarian clientelism[4], "the manipulative interplay of persuasion and coercion" (Hellman 1994, p. 127). In rural areas this clientelism meant vote buying, funneling of rural social services and aid through local PRI power brokers referred to as *caciques*, incorporation of social groups into state-controlled "movements", and active and brutal repression of any political opposition or non-state sponsored collective action (Fox 1994; Hellman 1994; La Botz 1995). In the 1980s, shaken by the economic crisis of 1982 and the loss of faith occasioned by the poor state response to the 1985 earthquake in the capital of Mexico City, the dominance of the PRI began to be slowly, but successfully challenged both by reformers from within and social activists from without (Fox 1994; Preston & Dillon 2004). As will be discussed more thoroughly in Chapter 5, this period marked the rise of a strong network of civil society organizations and independent social and environmental movements.

In 2000, Vicente Fox Quesada, the candidate from the Partido Acción Nacional (PAN - National Action Party) was elected president, breaking the 71-year rule by the PRI. In 2006, a second PAN president, Felipe Calderón Hinojosa was elected in an extremely close race with Manuel López Obrador, a candidate from the populist Partido de la Revolución Democratica (PRD - Party of the Democratic Revolution) who had garnered a relatively strong base of support from the rural poor (Fox 2007). Obrador contested the disputed election results in both the courts and in large-scale, nation wide street protests for months following the election (Lawson 2007). Faced with such a challenge to the legitimacy of his office from a populist pretender to the throne, Calederón needed to demonstrate his party's commitment to poverty alleviation in both rural and urban areas. As I discuss in the following sections, Calderón's motivation to find a poverty program to call his own, and the fact that market-based conservation initiatives appeal to the PAN party's fiscal conservatism meant that the relatively new national PES programs were a natural draw for his patronage.

Hybridization through the Social Conscience of Federal Bureaucrats

Among the designers of the first federal PES program, the Payments for Environmental Services – Hydrological (PSA-H), there existed a tension between the desire to create a truly innovative, market-based conservation initiative and the recognition that, for both moral and pragmatic reasons, any such program must take into account the potential impacts to the rural

[4] *Clientelism* is defined here as an exchange of political rights by subordinated people in return for access to material or social benefits.

poor. At times it is difficult to draw clear dividing lines between those in the market-based vs. poverty alleviation camps. The actors most directly involved in the program's design, economists from Mexico's National Ecology Institute (INE) and the University of California, Berkeley and foresters from the National Forestry Commission (CONAFOR), fought over a number of policy design issues that pitted the efficiency and effectiveness of conservation goals against issues of equity and the desire to ensure that the poor would be included in program benefits.

The determination of payment targeting and amounts for the PSA-H program was politically fraught and highlights the extent to which the "market-based" conservation goals of one group of federal actors could clash with the poverty alleviation priorities of another. The team of consultant researchers from the University of California Berkeley had modeled likely outcomes based on choice of payment schemes (Alix-Garcia et al. 2008). Their models predicted that payment rates differentiated according to predicted risk of deforestation and potential to produce the targeted environmental service would be most efficient at achieving conservation goals while a flat payment with a cap on maximum land area would be more "egalitarian" in the distribution of benefits. In the end, the choice of payment scheme was determined more by logistical and political concerns rather than models of economic optimization.

Based on the Berkeley model, the INE design team promoted a number of policy mechanisms that would ensure that payment rates were calibrated so that the owners of parcels at greater risk of deforestation and or in areas with a high demand for hydrological ecosystem services would receive higher per-hectare payments (Alix-Garcia et al. 2006). The team proposed reverse auctions as the optimal means of matching payments with recipient's opportunity costs, thereby maximizing program cost-effectiveness. Landowners would compete to qualify for payments by bidding to conserve their forests, with only the lowest bidders chosen to participate[5] (Muñoz-Piña et al. 2008). CONAFOR rejected this proposal because it was too logistically complex, but also because it would be politically problematic to pay some participants more per hectare than others. The alternative was a fixed-rate payment scheme with higher rates paid where the likely impact would be greatest (e.g. location in overexploited watersheds, high risk of deforestation, etc.).

The next challenge was to determine the amounts of the fixed-rate payments. CONAFOR decided that it would be politically unfeasible to differentiate the rates of payment according to region even though opportunity costs of land conversion vary greatly between regions. Instead, they used a national study of the opportunity costs associated with forestland conversion to annual crop production or pasturage to determine the average opportunity costs of conversion across the entire nation. The result was a fixed payment scheme with a cap on total number of hectares per participant. Though CONAFOR included location in an overexploited watershed as a selection criteria, they were unwilling to include risk of deforestation. They did however concede to slightly higher payments for cloud-forest parcels, considered by the consulting ecologists to be most important for water provision. The PSA-H program has been criticized by those advocates of the market-efficiency narrative for being inefficient in achieving conservation goals (Chomitz et al. 2007, pg. 187), and the actual distribution of program benefits has certainly born out the theory that flat, undifferentiated

[5] A similar system is employed in the Conservation Reserve Program in the United States.

payment schemes are better at promoting poverty alleviation than forest conservation (Muñoz-Piña et al. 2008).

One of the most contentious neoliberal reforms in Mexico has been privatization of common property, seen by many critics as weakening the autonomy and tenure security of rural communities. The INE design team stepped squarely into this debate by recommending that, in the case of *núcleos agrarios*, payments be made directly to individual households. Analyses by the Berkeley consultants and design team members of drivers of deforestation had concluded that the high cooperation costs associated with collective action meant that payments to individuals would be more efficient (Alix-Garcia et al. 2004; McCarthy et al. 2001; Muñoz-Piña et al. 2003). However, CONAFOR argued that, despite the 1992 reforms to communal land tenure law, there were greater legal grounds for communal rather than individual ownership. They opted to distribute funds directly to the governing bodies of the *núcleos agrarios'* communal lands (Muñoz-Piña et al. 2008), in effect electing to support common property rights.

In a reversal of roles, some members of INE's design team proposed specifically targeting some portion of the program to communities classified by the Mexican government as marginalized or highly marginalized.[6] Although this stipulation was not adopted, the team endorsed another "anti-poverty" provision: an upper limit of 2,000 hectares of land per ecosystem services recipient, so that large-scale landowners would be excluded. CONAFOR accepted the concept, but changed the upper limit to 4,000 hectares.

These contests over the design elements that, for the most part, favored targeting of the program to the poor vs. efficient conservation was the beginning of an increasing emphasis by the federal government on using the PES programs for "poverty alleviation".

Hybridization thorough the Federal Politics of Rural Poverty Alleviation in Mexico

The tension between conservation vs. poverty alleviation goals that began to come to the forefront during the design of the PSA-H program would only increase as the federal PES programs grew in scale and scope. The programs were to receive tremendous financial and political support from Mexico's new president, who appreciated the programs for their ability to pack a triple political punch, proving his commitment to national environmental goals, international environmental agreements and rural poverty alleviation. The support of the executive branch would allow those implementing the program at CONAFOR to resist further pressure from the World Bank to focus on the development of actual markets for the ecosystem services produced and to target the payments not toward the poor but to where they would have the greatest conservation bang for the buck.

President Felipe Calderón, narrowly elected in 2006 and under pressure to address the consequences of economic polarization, targeted the PES program as one of his top ten priorities. The market-efficiency logic of PES fits Calderón's fiscal conservatism and general worldview, he has a master's degree in economics, and its conservation objectives are useful for demonstrating Mexico's environmentalism to international conservationists. However, it is the opportunity to promote PES as a poverty alleviation program that has primarily attracted

[6] "Degree of Marginalization" is a classification calculated at the municipal level by the Mexican federal bureau of statistics based on a various socioeconomic indicators including income.

Calderon's support. In his speech to unveil the National Development Plan 2007-2012, the road map for the country's development, Calderón stated that:

> "Our natural riches can and should be the solution to resolve the problems of marginalization and poverty in many rural and indigenous communities. For this reason we have launched programs focused on payment for ecosystem services, such as ProÁrbol, with which we can offer dignified sources of income for those who dedicate themselves to protect and renew our forests and woods, of which the indigenous people are the first owners." (Calderón 2007, p. 5)

In his remarks about the environmental components of the Plan, the PES component of ProÁrbol is the only program he mentions by name. Calderón has backed his rhetorical support for the program with significant financing. During 2007, Calderón twice allocated a more generous matching-funds from the federal budget than was required in the loan agreement with the World Bank and funding for the PES program has increased times four overall since his election. In 2007, both the funding and number of participants in the Mexican national PES programs quadrupled from the previous year (Table 2.1)

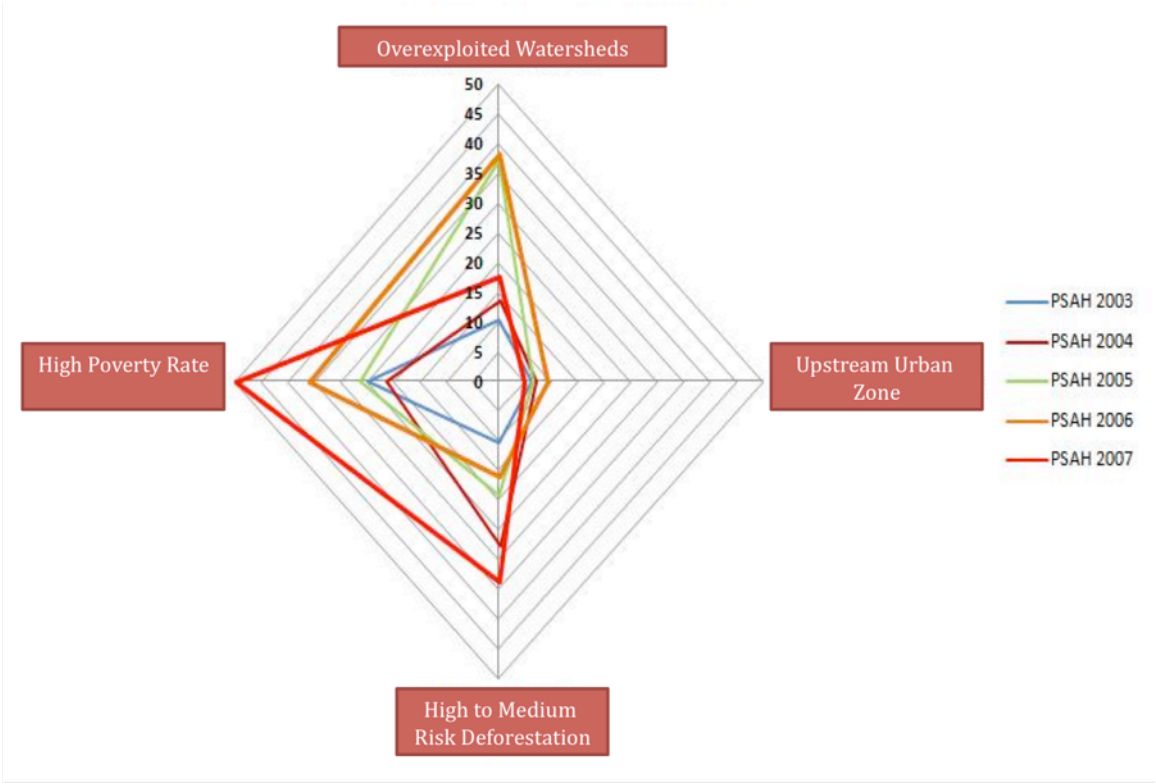
In May 2006, the Mexican federal government accepted a US$45 million World Bank loan and a US$15 million Global Environment Facility grant to restructure and expand the PES programs. Using this financing as leverage, World Bank advisers attempted to re-assert market-efficiency, conservation-first priorities onto the PES program design. A project appraisal report commissioned and endorsed by the Bank attributes deviation from the original, market-based ideal to the fact that the program is government funded and "is thus subject to political decision making" (World Bank 2006, p 13). The report explains that, "Market-driven PES programs are more likely to be sustainable because they depend on the self interest of the affected parties rather than on taxes, tariffs, philanthropy, or the whims of donors." (Ibid, p 3). Although one the World Bank's four main stated goals for the restructuring of the project was "poverty reduction", the assessor's report specifically objected to the apparent channeling of ecosystem services payments to the poor, claiming that such targeting "risks undermining their primary objective of generating valuable ecosystem services" (Ibid, p 13). The World Bank's advisory team did manage to push through the assignment of increased funding and technical assistance to eight "priority zones," areas identified as having high potential for the development of local markets for hydrological services or tourism markets for biodiversity services (World Bank 2006).

Mirroring the INE design team's original conception, the World Bank also pressed CONAFOR to switch from flat rate payments to a system gradated by predicted risk of deforestation and opportunity costs. However, differentiated payments proved to be politically unviable and, to some, morally indefensible. A member of the CONAFOR PES team stated, "We are all Mexicans and we all deserve to be paid equally, just as we all deserve to benefit equally from the ecosystem services produced by our nature." (Interview, October 3, 2007).

Confirming the World Banks' worst fears, emphasis on poverty alleviation has only increased as the PES program has evolved while targeting to increase conservation efficiency has decreased. A study analyzing PSA-H participant selection in 2003 – 2005 estimated that 78 percent of participants lived in municipalities with "high" or "very high" degrees of marginalization. Environmental criteria had apparently been given

lower priority: 61 percent of the participating parcels were classified as having a "low" or "very low" risk of deforestation and 79 percent were in areas without officially recognized problems of water scarcity (Muñoz-Piña et al. 2006). These trends have become more pronounced with each round of participant selection (see Figure 3.1). In 2006, degree of marginalization was added as part of the point system used to prioritize qualified applicants and in 2007, after Calderón began to tout the ability of the PES programs to promote poverty alleviation, CONAFOR began to require that all participants be classified as being either highly or moderately marginalized. As a result, in 2006 82.8% of participants fell into one of these two categories and in 2007 the rate rose to 91.4% (Muñoz-Piña et al. 2008).

Figure 3.1. The degree to which the participant groups of the 2003-2007 rounds of the PSA-H program match four different targeting criteria: located upstream from an urban center with a population > 5,000; located in an overexploited watershed; in a zone estimated to be at high to medium risk of deforestation; in a zone with high to medium degree of marginalization (Courtesy of INE 2008)



Despite the overt emphasis on using the PES program for poverty alleviation, a number of NGOs and academics in Mexico have begun to question the long term impact of this direct payment program that impose few limits on how the funds are to be spent or provide any support for capacity building or other development activities. If allocation of financial resources is any indication, the trend in Mexico does not favor these more integrated programs. A recent report on the state the Mexican forest sector found that the few CONAFOR programs

that supported integrated development of forest management and productive activities in rural communities, such as management for timber, community-managed sawmills or value-added forest product industries, were not only relatively underfunded, but were also directly competing with the higher payments and less stringent and less onerous requirements of the PES and reforestation programs. The study's authors conclude that PES and other direct "government subsidy" programs, along with the reliance on remittances from relatives working abroad, provide significant disincentives for the development of productive community resource management (Merino-Pérez et al. 2008, p. 169). As will be discussed in Chapter 5, the rural social movements actors who were to participate in the design of the second federal PES program, PSA-CABSA, brought a very different, more holistic view of poverty alleviation that was to have specific impacts on the policy mechanisms included in the program design.

Though PES contracts were originally limited to five-year terms with the expectation that participants would have "created" or linked with existing markets for their ecosystem services by the termination, in almost all cases no such markets have materialized. As of 2009, participants are permitted to reapply at the end of the five years, the program has become increasingly targeted to indigenous and 'highly marginalized' communities, and federal financial support for the program continues to increase as it becomes evident that it is a triple win for the executive branch, demonstrating support of both domestic and international environmental concerns, poverty alleviation, and "free markets". Though the World Bank has maintained pressure on CONAFOR to "create" markets for ecosystem services, the programs have essentially become federally funded rural subsidies.

Notwithstanding World Bank misgivings about the lack of market development for carbon and the other ecosystem services in the CONAFOR program, in 2008 the Bank's Forest Carbon Fund cited the success of the PES program as an important factor for selecting Mexico as one of fourteen countries slated to develop Reduced Emissions from Deforestation and Degradation (REDD) schemes (Wroughton 2008). The PES division of CONAFOR was designated to develop a plan for production and sale of carbon credits generated by forest conservation. Despite a 2008 scandal over misuse of funds and low success rate of the reforestation component of PROÁRBOL, President Calderón continues to cite the program, particularly the PES component, as one of the capstones in his "Green Plan" that he claims will cut Mexico's carbon emissions 50 percent between 2002 and 2050 (Tuckman 2009). However, in his push to make Mexico a leader in the production of carbon offsets, Calderón has denounced private-sector carbon markets, strongly advocating the development of an international 'Green Fund' supported by emitter nations (Stevenson 2009).

Conclusions

The fact that control of the program has remained firmly with the federal state, the reasons for which will be discussed in the following chapter, has allowed it to shift from an initiative intended to introduce market efficiency, and eventually true markets, into the promotion of the conservation of ecosystem services into a subsidy for rural poverty alleviation. This process of hybridization began with the federal bureaucrats who designed the first, payments for hydrological services program. In their back and forth support of some measures with a conservation focus and others that were purely bent to make the program accessible to poor, rural land holders, we can see how their conflicting intentions began to lead

the PES programs toward and emphasis on poverty alleviation. As President Calderón began to employ the PES programs rhetorically as proof positive of his dedication to rural poverty reduction, CONAFOR simultaneously began to weight the targeting of the programs toward "marginalized communities" and away from "risk of deforestation". And the political and financial support from the executive branch allowed CONAFOR to resist attempts by the World Bank to impose greater market efficiency measures on the expanding program.

In the next chapter, we examine the ways in which, though they had supposedly all been downsized, decentralized and/or privatized through successive rounds of neoliberal reforms, the still strong Mexican federal institutions for natural resource governance undermined the market-like policy mechanisms designers and World Bank advisors proposed, keeping the PES program solidly under federal control.

Chapter 4

The Institutional Context of Ecosystem Services

Market-oriented analysts see PES as one means of decentralizing environmental management and reducing state control of natural resources (World Bank 2007). However, a long history of federal control of natural resources still shapes Mexican political culture, even after attempts at devolution and privatization through the constitutional reforms of the early 1990s. A member of the World Bank's PSA-H advisory committee opined that, "Mexico is a state that can't let go of itself, but that is precisely what needs to happen if PES is to succeed" (Interview March 9, 2006). Throughout the PSA-H and PSA-CABSA design process, proposals for market-like ecosystem services pricing and decentralized program administration were rejected or altered as they clashed with the institutions of the Mexican federal state.

This chapter examines the ways in which the institutional context of the natural resources and ecosystem services involved in the PES program presented barriers to their commodification. The chapter begins with an overview of the history of natural resource governance in Mexico, following the path from highly centralized control to the decentralizing forces of structural adjustment and other neoliberal reforms. It then discusses the specific institutional context and governance of each of the "ecosystem services" involved in the national PES programs: forests, water, carbon sequestration, biodiversity and agroforestry systems.

Neoliberal Reform and Natural Resources in Mexico

The late 1980s and early 1990s saw a period of neoliberal reforms in Mexico that led to the elimination of trade barriers, price supports and subsidies, the decentralization of state power and the privatization of land and natural resources. These reforms have had significant impacts on both rural development and the ownership of and access to environmental goods and services. In 1986 Mexico joined the General Agreement on Tariffs and Trade (GATT) and in 1992 signed the North American Free Trade Agreement (NAFTA), both of which signified the end to a long run of import substitution policy in Mexico and the removal of trade barriers for agricultural and forestry products, among many others (Lewis 2002; Liverman 2006; Merino-Pérez 2004; Wilder 2006). During this period, under a strict structural readjustment policy, subsidies for agricultural and forestry production were also severely cut (Merino-Pérez 2004; Segura 2000; Bray 2005).

In 1992, during the Salinas presidency, multiple reforms were made to Article 27 of the Mexican constitution as well as to federal agrarian, forestry and water use laws (Instituto de Investigaciones Juridicas 2007). These reforms opened the door to privatization of commonly held *núcleo agrario*[7] land as well as the natural resource base which had previously been

[7] The term *núcleo agrario* references a number of legally defined common property tenure systems, including *ejidos* (peasant associations) and *comunidades* (indigenous communities).

legally defined as the property of the federal state (Bray 2005; Klooster 2003; Liverman 2006; Merino-Pérez 2004; Peña 2006; Wilder 2006). The impact to the institutions and governance of these reforms on individual resources is discussed more thoroughly in each section below.

The organizational structure in Mexico of the federal oversight of natural resources, and the laws that govern their use, have changed over time as the result of shifts in political will, economic imperatives and cultural schematics of the natural world. From the 1930s to the 1980s, forests were under the control of the Ministry of Agriculture and, in an import substitution model that required internal production timber, forestry was the province of private industry who rented government or *núcleo agrario* lands, often with coerced consent of the owners (Klooster 2003, Bray et al. 2005; Bray et al. 2006). From the 1940s to the early 1990s, water in all its forms was under the auspices of the Secretaría de Recursos Hidráulicos (SRH – Secretary of Water Resources) (Scott & Banister 2008). As will be discussed more thoroughly in the following sections, water in Mexico was and is "owned" by the federal government, and though some aspects of allocation, management and fee collection has been decentralized or even privatized, what funds are collected must be funneled back to the federal level and redistributed (Alix-Garcia et al. 2005; Scott & Banister 2008). In 1994, the Secretariat of Environment, Natural Resources and Fisheries (SEMARNAP) was formed and took forest and water resources under its wing along with protected areas and conservation initiatives more generally. In 2001, forest resources were allocated to a subsidiary agency, the National Forestry Commission (CONAFOR) (Mathews 2005). Biodiversity, whose value as a "resource" is never clear, and biomass sequestered carbon, whose resource value until recently was non-existent, are also under the control of the Ministry of the Environment. Although the conservation value of diverse coffee agroforestry systems has begun to be recognized both within Mexico and globally, coffee production remains nominally under the nominal control of the Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación (SAGARPA – Secretary of Agriculture, Livestock Production, Rural Development, Fisheries, and Nutrition). However, as will be discussed further below, since the dissolution of the federal Instituto Mexicano de Café (Inmecafe – Mexican Coffee Institute) under a structural adjustment program in 1989, coffee growers have received little support for technical assistance, marketing or credit (Aranda-Bezaury 2003).

Beginning in the 1940s, when concern over degradation of natural resources came the fore and parties and state joined to create large, technocratic agencies, the tendency in Mexico was for greater centralized control, which, in turn required an ever-expanding, labyrinthine bureaucracy (Klooster 2003; Scott & Banister 2008). Even after the structural adjustment period of the 1980s and 1990s, when federal agencies were downsized and, nominally, decentralized, true control over access, and in some cases ownership, of natural resources remained with the federal agencies. The still strong federal institutions for control of natural resouces were to present significant obstacles to the market-based policy design mechanisms suggested by the original designers of the national PES programs and, ultimately, to the commodification of ecosystem services in Mexico.

The Institutional Context of Ecosystem Services in Mexico

I realize that the concept of "institution" is often vaguely or incorrectly applied in both scholarly and popular literature. I favor Elinor Ostrom's precise and wonderfully inclusive definition:

> "Institutions can be defined as the set of working rules that are used to determine who is eligible to make decisions in some arena, what actions are allowed or constrained, what aggregation rules will be used, what procedures must be followed, what information must or must not be provided, and what payoffs will be assigned to individuals dependent on their actions." (Ostrom 1990, p. 51)

The following sections describe, very specifically, how the institutional context of each of the ecosystem services incorporated into the federal PES programs impacted the eventual design and implementation of the programs.

Forests

The initial, INE-led PSA-H design team decided to focus on water quality and quantity and to use forest conservation as a proxy for production of these hydrological services. In the initial, 2003 version of the program eligible plots had to be at least 80 percent forested and remain so for the five-year duration of the contract. There were political and pragmatic reasons for the emphasis on forest conservation. In Mexico, conservation of forests and water had been designated as a priority by the federal Secretary of the Environment and Natural Resources (SEMARNAT). Also, water supply seemed to be the ecosystem service with the most identifiable and accessible potential market (Alix-Garcia et al. 2006). CONAFOR could employ relatively non-costly means to establish baseline forest cover measurements and monitor change – through analysis of satellite images "ground truthed" through an initial and subsequent bi-yearly visits to take GPS measurements of parcel boundaries and complete cursory descriptions of forest quality. The ability to monitor production of ecosystem services from CONAFOR's head office in Jalisco was an important consideration for a federal agency that had been deliberately downsized during successive rounds of structural adjustment. The PSA-H design team also specifically acknowledged that, in the absence of strong scientific data on ecosystem functions, "natural" forest cover is widely accepted by policy makers in Mexico and elsewhere as playing, "an important role in protecting water sources" (Muñoz-Piña et al. 2005, p 9). CONAFOR decided, again on the basis of slight evidence, to pay higher per hectare rates for cloud-forest parcels, considered to be most important for water provision[8].

An estimated 72% of Mexico's land area, a total of 142 million hectares, has some type of forest cover (CONAFOR 2002; Merino-Pérez 2004). It has also been estimated that between 13 and 15 million people live in these forested zones, more than 50% characterized by high levels of poverty (Merino-Pérez 2004). The rate of deforestation in Mexico, the conservative estimate is 1.3%/year, is the twelfth highest in the world when calculated as a

[8] There is considerable debate among hydrologists and ecologists, internationally and within Mexico, over whether and under what conditions positive relationships between tree cover and water infiltration and purification can be assumed (Bruijnzeel 2004;Ponette-González et al. 2009).

proportion of total forest cover, and the fourth highest rate, behind Brazil, Indonesia and Russia, when calculated by total hectares deforested/year (Torres-Rojo 2001; FAO 2005).

The choice to use forest cover as a proxy for the production of hydrological services forced CONAFOR to enact the PSA-H program primarily on the *núcleo agrario* land. In contrast to many countries where the majority of forested land is held privately or by the state, an estimated 80 percent of forestland in Mexico remains under collective ownership (Bray et al. 2005). These lands, the majority sloped forest land with marginal agricultural value, were originally deeded to peasant groups and indigenous communities during the various waves of land reforms following the Mexican Revolution of 1910 – 1920 and lasting through the late 1970s. The continued predominance of communal ownership of forested land is reflected in the record of participation in the PSA-H program - between 2003 and 2006, approximately 90% of the participants were *núcleos agrarios* (Bezaury-Creel 2007). And while the 1992 constitutional reforms to Article 27 had allowed the *núcleos agrarios'* individual agricultural, grazing and housing parcels to be subdivided and sold, forested land were required to remain common property (Segura 2000; Merino-Pérez et al. 2004).

External institutional mandates also derailed the PSA-H design team's attempt to target the placement of the program according to market logic. CONAFOR decided to include forestland inside protected areas as eligible for payments in the PSA-H program. Because CONAFOR had been asked to manage the Program for the Sustainable Management of Mountain Ecosystems, a derivative of the United Nation's Agenda 21, lands on "priority mountains" were also included (Alix-Garcia et al. 2005). These selection criteria were in contradiction to the design team's ideal of targeting payments where they would be most cost effective: there was no guarantee that these areas were in zones at risk of deforestation, especially in the case of lands in protected areas, or in regions with high demand for hydrological services.

It is ironic that the Mexican PES program pays landowners *not* to cut down their forest. There are strict federal laws in Mexico that regulate the harvest of forest products, particularly timber. Because obtaining a permit is so cumbersome and the laws are so infrequently enforced, the majority of forest harvest in Mexico is done illegally. The Procudaría Federal del Protección al Ambiente (PROFEPA - Federal Environmental Protection Agency) has estimated that since the mid-1990s, the volume of wood extracted illegally is at least equal to that extracted legally (Merino-Pérez & Segura-Warnholtz 2002). Under the logic of "If a stick doesn't work, try the carrot", the PES program pays people to act on what they are legally bound to do. The PSA-H program designers also penalized those landowners who *had* followed the rules. Civil society associations had lobbied CONAFOR and the design team to include community forestry enterprises as eligible, but, again under the logic of targeting for high risk of deforestation, the team permitted only a maximum of 200 ha to be entered by the communities who *had* followed the law and obtained harvest permits. Civil society members of the PSA-CABSA design committee later proposed that 10% of total program funds be allocated for lands under sustainable, community-based management for timber extraction, but this idea was quickly rejected by CONAFOR (Interview June 29, 2006).

Water

In choosing hydrological services as the focus of the first PES program, the INE design

team inadvertently stepped into the minefield of federal laws, bureaucratic regulation, and political intrigue surrounding water in Mexico. The INE design team recognized that PSA-H would function initially as a monopsonistic, non-competitive market with the federal government as the sole ecosystem services buyer, but had hoped to establish a direct economic link between the producers and beneficiaries of hydrological services.

In Mexico, water is "owned" by the federal government, household, agricultural and industrial water use fees being collected on the municipal level and then turned over to the federal Ministry of Finance (SHCP). Although the designers of PSA-H recognized that PSA-H would therefore function at least initially as a monopsonistic, non-competitive market with the federal government as the sole ecosystem services buyer, they had hoped that, at the least, a direct economic link could be made between producers and beneficiaries of hydrological services. They therefore lobbied extensively to have the SHCP and the National Water Commission (CNA) raise the water use fees and specifically target 2.5% of the revenue earned to support the PSA-H program. This proposal was strongly resisted by the SHCP because the earmarking of taxes or fees was taboo in Mexican fiscal policy[9] (Muñoz-Piña et al. 2005). CONAFOR bypassed the SHCP and took the proposal directly to the Mexican congress. The congress approved the allocation of water fees to support the PES program, although instead of receiving a percentage of the total, a set amount, 18.2 million USD was earmarked for the first year of the program, effectively weakening the directness of the economic link between water users and suppliers (Alix-Garcia et al. 2005; Muñoz-Piña et al. 2005). The Ministry of Finance later classified the funds for the program as a "subsidy" as opposed to a "payment for service", which also undermined representation of the project as market-based (Alix-Garcia et al. 2005). Under federal law, a "subsidy" must only be distributed by a federal agency, which thwarted the design team's original intent to decentralize control of program funds and participant selection to state governments. All project funds were instead to be held in a newly created trust, called the Mexican Forest Fund (FFM), and distributed in yearly increments by CONAFOR. Thus, administration of the project remained squarely under federal control.

The INE team did manage to implement two market-oriented concessions. First, PSA-H would be limited to sites with a potential demand for hydrological services, i.e., in watersheds classified as "overexploited" and upstream from population centers of greater than 5,000. These criteria were meant to increase the chances that participants would find actual buyers for their ES. In order to discourage dependence on subsidies, payments were limited to a period of five years, during which participants were expected to develop ecosystem services sales agreements with downstream water users. The term limits for the federal payments were, as mentioned earlier, overturned and the first cohort of the PSA-H program was allowed to reapply when they reached the end of the initial five-year limit.

Carbon Sequestration

Mexico had early experience with the carbon offset market. Begun in 1996, the Scolél Te project in the state of Chiapas was one of the earliest and largest forest-based programs in the world to tap into the voluntary carbon market (Brown & Corbera 2003). However, CONAFOR and the members of the PSA-CABSA design committee were, as many policy

[9] A number of "environmental fees" were subsequently approved during the Fox administration.

makers around the world, woefully ignorant of the workings of the international carbon market and of the technicalities of measuring baselines and additionality of forest-sequestered carbon. CONAFOR, as a decentralized and down-sized federal agency, did not have enough personnel at the regional levels to carry out the measurement themselves, and so participants and their intermediary consultants or civil society organizations were required to establish protocols on their own. The PSA-CABSA program chose to require that participants follow the protocol established by the UNFCCC under the Clean Development Mechanism (CDM) of the Kyoto Protocol, one of the few international climate change policies that credited forest-based carbon offsets. Unfortunately, the protocol for establishing and certifying CDM projects has proved to be particularly costly and unwieldy, with very few projects having been approved worldwide. And of particular inconvenience for the rural participants in the carbon component of the PSA-CABSA program, the CDM protocol was not accessible in Spanish. For these and other reasons, between 2005-2008 only 71 projects have been funded for the two-year design phase of the carbon program (Corbera & Brown 2008). In recognition of the difficulty of developing these types of projects, the carbon component of the CONAFOR PES program now pays for "development of the idea of a carbon sequestration project" instead of "carbon sequestration" (CONAFOR 2009, p. 3). And though they have switched from requiring the carbon measurement protocol of the CDM to that of the BioCarbon Fund of the World Bank, the specific regulations are equally vague.

Notwithstanding World Bank misgivings about the lack of market development for carbon and the other ecosystem services in the CONAFOR program, in 2008 the Bank's Forest Carbon Fund cited the success of the PES program as an important factor for selecting Mexico as one of fourteen countries slated to develop Reduced Emissions from Deforestation and Degradation (REDD) schemes (Wroughton 2008). The division of CONAFOR that oversees the PES programs was designated to develop a plan for production and sale of carbon credits generated by forest conservation. Despite a 2008 scandal over misuse of funds and low success rate of the reforestation component of PROÁRBOL, President Calderón continues to cite the program, particularly the PES component, as one of the capstones in his "Green Plan" that he claims will cut Mexico's carbon emissions 50 percent between 2002 and 2050 (Tuckman 2009). However, in his push to make Mexico a leader in the production of carbon offsets, Calderón has denounced private-sector carbon markets, strongly advocating the development of an international 'Green Fund' supported by emitter nations, further undermining the potential development of "true" markets for ecosystem services in Mexico (Stevenson 2009).

Biodiversity

As with all "market-based" biodiversity conservation initiatives, it can be difficult to locate the potential buyers, the demand side, in this component of the Mexican national PES program as the benefits of maintaining biodiversity are generally very diffuse. But what the program lacks in prospects for financial capital, it makes up for in the political capital it generates. SEMARNAT and the executive branch have used the payment for biodiversity services program to make claims that Mexico is fulfilling its obligations from everything from climate change mitigation, the Convention on Biological Diversity, the Ramsar Convention on Wetlands, and the Mesoamerican Biological Corridor (SEMARNAT 2008; CONAFOR 2009).

In 2006, the Global Environment Facility provided a grant of US$15 million, matched by the Mexican federal government through CONAFOR, to start the *Fondo Patrimonial de Biodiversidad* (Biodiversity Heritage Fund), now the primary base of funding for the biodiversity component of the CONAFOR PES program. The stated objective is to conserve habitat of, "biodiversity whose location and importance have global repercussions" in the buffer zones of national protected area and the Mesoamerican Biological Corridor (CONAFOR 2009). SEMARNAT (2008) states that idea is to use the interest from the Fund's capital to make "permanent" payments to the owners of these lands or to "promote market systems to contract for ecosystem services derived from biodiversity", but they offer very few details of what these "derivatives" might be nor what "market systems" might pay for them. They project that the fund will swell to over US$200 million by 2025, though, again, providing very few details about where these funds will come from. It is very difficult to argue that the biodiversity component of the CONAFOR PES program nor the Fondo Patrimonial de Biodiversidad is any more "market-based" than earlier conservation funds, including the Fondo Mexicano para la Conservación de la Naturaleza, which started in 1994 with a large grant from USAID, and successive debt-for-nature swaps run through Conservation International's office in Mexico (WWF 2003; FMCN 2009).

Even more so than with the payment for carbon sequestration component of the PES program, CONAFOR has had difficulties in defining and measuring the "success" of the biodiversity payments. Similarly to the carbon projects, the dearth of personnel in CONAFOR's regional offices means that the initial management plan, implementation and, for the most part, monitoring, are in the hands of contractors or NGOs hired by the community. However, unlike carbon projects, in which a ton of biomass-sequestered carbon is universally equal, "biodiversity" is not likely to be commensurate between sites. The management plan and monitoring protocol for increasing white tailed deer populations in Oaxaca is very different than that for improving habitat for an endangered cactus in Baja California. The level of disparity between these projects made it difficult for CONAFOR to design and enforce uniform protocols and regulations.

Agroforestry systems

Coffee association representatives among the MECNAM members on the PSA-CABSA design committee fought to include payments for perennial crops, such as coffee, palm, cacao, vanilla, and rubber, grown in conjunction with other trees and/or crops. They argued that these complex agroforestry systems deliver multiple ecosystem services and restore "tree species of importance to the community as well as to the conservation of biodiversity" (Interview June 16, 2006). The representative from the *National Union of Autonomous Regional Campesino Organizations* (UNORCA), whose constituents are mainly small-scale grain producers, demanded that introduction of agroforestry systems in association with annual crops should also qualify for ecosystem services payments.

The coffee producer organizations in MECNAM were also familiar with the premium to be had from "eco-certified" export markets, such as organic, shade-grown, bird-friendly, etc., and so "had some knowledge of the concept of environmental services" (Interview November 22, 2005). These MECNAM members also had an economic motive. Small-scale coffee producers, already struggling after the removal of subsidy and marketing programs during

various rounds of structural adjustment, had been hard hit by the global coffee-price crash of the late 1990s (Bacon et al. 2008). The co-founder of a state-level association of coffee cooperatives explained that, "We were looking for anything we could do to keep coffee farmers from cutting down their plantations. We needed the subsidy from PES." (Interview, November 30, 2005).

CONAFOR and INE negotiators opposed including agroforestry systems in the new PES program. CONAFOR is a forestry agency without expertise in managing agricultural landscapes. Furthermore, they argued, inclusion of agroecosystems producing multiple services conflicted with their conceptualization of PES - "natural" forests producing a discrete environmental service with a clearly defined "buyer". CONAFOR also objected to including agroforestry because of the costs of coordinating the participation of multiple smallholders. While forests on communally held *núcleos agrarios* must, by law, be managed communally, agroforestry systems in Mexico are typically implemented on individual plots. The MECNAM members on the design committee won the inclusion of payments for improvement of existing agroforestry and for conversion of cropland to new agroforestry areas, but with the proviso that participants would apply as associations to minimize the transaction costs involved in monitoring their involvement.

In the third year of PSA-CABSA's implementation, CONAFOR removed the introduction of new agroforestry systems as a PES-eligible activity, but retained payments for improvement of shade agroforestry systems. Pressure from coffee-grower associations helped to keep these managed ecosystems in the program, but it was also easier to argue that they produced marketable ecosystem services since growers were already receiving market premiums for eco-certified coffee.

Conclusions

The neoliberal leanings of the original designers of the Mexican National PES programs' toward market-efficient conservation mechanisms, the creation of new property rights and the attempt to devolve administration from federal hands was significantly subverted and hybridized through successive waves of interactions with the still strong Mexican federal institutions. As a result, the PES programs have been altered in both meaning, or stated goals, and means, or their specific design.

While neoliberal advocates conceived of the national PES programs as a means of increasing conservation efficiency by decentralizing environmental management and reducing state control, they were to find that even after thirty years of neoliberal 'adjustments' federal control of natural resources still shapes Mexican political culture. As Mathews (2005, p. 798) discusses in his ethnography of the Mexican ministry of the environment, "although the state is not monolithic, neither is it completely diffuse." Time and again, the original designers of the PES program were thwarted in their attempts at introducing market-like mechanisms, forced to accept state-centered compromises: set payments instead of reverse auctions; fixed funding instead of a percentage of the federal water tax; payments to communities not individuals; and distribution as a federal subsidy instead of state-controlled funding banks. The end result is a PES program that remains solidly under federal control. The recent decision to extend the time limit of contracts indefinitely only confirms that the PES programs are a federal subsidy.

The following chapter examines the role of that a national coalition of rural social movements had in altering the meaning of the national PES programs as well as their specific elements of their design, to be a societal recognition and financial support for good forest stewardship rather than an payment to incentivize land managers to leave their forests alone.

Chapter 5

Intervention of Rural Social Movements

In the two previous chapters, we have seen how the actors, institutions and politics of the federal state in Mexico had a significant impact on the evolution of the national payment for ecosystem service programs, even after twenty plus years of structural adjustment programs intended to down size and decentralize it. In this chapter we will explore how in a politics dominated by neoliberal thinkers and an economy ruled by policy allegedly intended to "free" the markets, the state still mediates between social movements and powerful actors at multiple scales. The continued dominance of the state in creating, regulating and financing the Mexican national PES programs, and the failure of true market development for ecosystem services, presented opportunities for challenging the basic neoclassical economic premises on which the concept of PES is built. In the case of the national programs, the continued involvement of the federal state was the "fulcrum point" (Peluso 2007, p. 92) that allowed rural social movements in Mexico to leverage a very distinct conceptualization of PES, as a societal revaluing of the rural, and to introduce discourse and policy that countered the market emphasis of the original, neoliberal conception of PES.

In January 31, 2003, twelve peasant and indigenous organizations led over 100,000 people on a march to Mexico City's center of government to protest the lifting of agricultural tariffs under NAFTA (Carlsen 2003). This movement, called the *¡Movimiento el Campo no Aguanta Más!* (MECNAM*)*, which translates as "The Countryside Can't Take Anymore!" had unified disparate sectors of the rural population in a way not seen in Mexico since the agrarian reform movement of the 1930s. Their common cause was to counter the recent history in Mexico of neoliberal agricultural policies, particularly calling on the Mexican federal state to renegotiate the agricultural chapter of NAFTA. MECNAM leaders called on the Mexican state to "revalue the rural" and, "Acknowledge the fundamental cultural role of agriculture and to break with the ideology that 'development' means to empty the countryside of farmers" (UNORCA 2007).

After a series of increasingly dramatic protests and prolonged negotiations, the government of then president, Vicente Fox, agreed to make a number of changes to rural policy in Mexico. Among these was an agreement to form a second national PES initiative, what was to become the PSA-CABSA Program, and to allow MECNAM representatives to serve on the design committee. As was argued in Chapter 1, the foundational principals of PES are based solidly on the neoliberal precept of the greater efficiency of market versus state-led initiatives. That an avowedly anti-neoliberal rural social movement would so strongly support a program founded on principles of market-efficient conservation through privatization and commoditization of the functions of rural ecosystems was surprising. Notwithstanding the seemingly poor ideological fit, and although not all of the diverse member organizations were in agreement, the expansion and redesign of the federal PES programs was to become the cornerstone of the movement's environmental strategy. But, as I will detail in the following sections, the MECNAM representatives brought to the design committee of the new program a very different conception of PES – as a societal recognition of the valuable role of *campesino*

environmental stewardship and an economic support to maintain it. MECNAM's direct involvement in the design of the PSA-CABSA program was to enact significant changes not only on the specific conformation of the policy itself, but also in redefining how federal policy makers came to understand the means and meaning of PES.

Rural Social Movements in Mexico

As was discussed in Chapter 3, corporatist dominance of the PRI party at all levels of Mexican politics from 1929-2000 led to a continual, primarily covert suppression of social activism. As their name, the Institutionalized Revolutionary Party, implies, PRI leaders were masters at "institutionalizing" political collective action. Unions, cooperatives, and political organizations were allowed to form, but only with the sanction and very close supervision of the PRI party. Rebellious groups who spurned the clientelism of the PRI system were often violently repressed (Hellman 1994; Fox 2007). The PRI party's dominance of civil society did wax and wane to some extent throughout the term of their rule, but it also evolved and became more sophisticated as the years passed. Hellman (2008) describes a particularly "nasty twist" of president Echeverría's six-year term, from 1970-1976, as being, "the invention of peasant and workers' organizations that carried the names of existing militant peasant organizations but which were headed by people passionately loyal to Echeverría." (p. 69). The PRI-sanctioned organization of rural workers and peasants is called the *Confederación Nacional Campesina* (CNC - National Peasant's Confederation) (Hardy-Raskovan 1984; MacKinlay 1996). Though it no longer completely dominates rural politics in Mexico, the CNC still holds enough control over various segments of the rural population that the Fox administration was able to use the organization to, on some issues and occasions, divide and conquer the MECNAM coalition (Fox 2007, p. 344).

The PRI began to lose its political stranglehold in the mid-1980s as the process of democratization and the growth of a relatively independent civil society developed. As the avenues for open political protest and active engagement of civil society organizations became more open, the *campesinos* of México have devised various forms of resistance to the decreasing emphasis on small-scale production and the devaluation of their way of life brought about by structural adjustment policies and the neoliberal policy aftermath. Rural social movements have attempted to fill the gaps left by the withdrawal of direct state support by replacing state price supports and services with cooperatives, state credit agencies with credit unions such as that of the *El Barzón* alliance, and corporatist membership organizations such as the CNC with more radical, independent associations of rural producers such as such as the *Asociación Nacional de Empresas Comercializadoras de Productos del Campo* (ANEC - National Marketing Association of Rural Production) and the *Unión Nacional de Organizaciones Regionales Campesinas Autónomas* (UNORCA - National Union of Autonomous Regional Peasant Organizations), not to mention the *Ejército Zapatista de Liberación Nacional* (EZLN - Zapatista Army of National Liberation). Starting mostly in the late 1980s and early 1990s, a number of organized small producer movements were founded, from organized armed rebellion in Chiapas and other southern states (Collier & Lowery Quaratiello 1994), to the resurgence of rural labor unions (MacKinlay 1996), to the

organization of farmers' commodity cooperatives representing production as diverse as corn and coffee (Acuña Rodarte 2003; Aranda Bezaury 2003).

The Zapatistas have been one of the most militant and most influential of these movements. Originating in the southern state of Chiapas, the EZLN had as its base indigenous Mayan peoples disenfranchised both politically and economically by an oligarchic state regime of ranchers and the owners of large estates and the pull back of the state from rural development in the late 1980s (La Botz 1995; Bobrow-Strain 2004; Fox 2007). First coming to international attention with an armed uprising on January 1, 1994, the Zapatistas were recognized as much for their persistence as for their clear articulation of an anti-neoliberal politic and a communitarian alternative (Harvey 2001). The Zapatista movement inspired and still gives guidance to the broader agrarian movements in Mexico. Alberto Flores Gomez, President of UNORCA, one of the largest peasant organizations in Mexico, has said that the Zapatista movement,

> "Jolted our consciences awake and made us see that the government was deceiving us. We were not on a stairway to becoming a rich country, nor would the Free Trade Agreement put us in an advantageous position to receive great benefits. The efforts of our indigenous brothers made us see that these were pure lies." (*Colectivo de Solidaridad de L'Hospitalet*, p. 2).

However, tension exists between peasant and indigenous movements, stemming from a recognition of their distinct histories and current positions in relation to the Mexican federal state. Flores Gomez attempts to address this when he continues to say, "But we will not fight in the name of our indigenous brother. We will fight together." (*Colectivo de Solidaridad de L'Hospitalet*, p. 2). The degree to which indigenous groups and their particular demands have been integrated into agrarian movements such as MECNAM has varied considerably.

As shall be discussed more thoroughly below, rural social movements in Mexico have become adept at appropriating environmental and social-liberal rhetoric (Bray 1997; Stolle-McAllister 2005; Harvey 2005). A discursive concept commonly employed by *campesino* organizations in Mexico and throughout Latin America is that of *revalorización del campo* (revaluation of the countryside), a call for the recognition of the environmental, cultural and economic benefits provided to society through traditional rural stewardship and the integral, co-production of "nature". In the 2004 *Manifiesto de Xochimilco*, Mexican and Central American *campesino* organizations proclaimed, "You will not conserve nature by depopulating the countryside… To restore lost resources and equilibrium, what is missing is the restoration of a sustainable rural economy, capable of use without destruction." (CMDMIRP 2004, Point 12).

Hybridization of the PES Programs by Rural Social Movements

UNORCA, a coalition of *campesino* organization, was first formed in the mid-1980s, though it was not until the PRI began to lose some of its crushing hold on the political life of Mexico in the mid-1990s that the organization began to gain strength and membership. It was UNORCA was primarily responsible for motivating the wider union of *campesina* organizations into the MECNAM coalition in the year 2000 (UNORCA 2007). When the first

national PES program, PSA-H, was introduced in 2003, MECNAM was just gaining enough critical mass to begin to make overarching demands of the federal government (Rubio 2007). Although not all MECNAM leaders agreed with the movements' embracing of PES, the reform and expansion of the PSA-H program was to become the cornerstone of its environmental agenda. However, in place of the neoliberal conceptualization of ecosystem service values determined by market forces, MECNAM representatives advanced a conception of ecosystem service values centered on *campesino* environmental stewardship and the contributions of rural ecosocial systems to national and local well being. Though the primary target of the MECNAM coalition was the renegotiation of the agricultural chapter of NAFTA, it was also to have significant influence and impact on the development of the national PES programs.

After a series of increasingly large and dramatic protests, the administration of President Vicente Fox agreed to negotiations in which all federal rural policies would be reviewed by MECNAM working groups. Although not granted the power to change policies, these groups would be spaces in which movement representatives could negotiate directly with state agencies. Because the Ministry of Finance had officially designated the new PES program as a rural subsidy (see Chapter 3) it too was open for review (Alix-Garcia 2005). The MECNAM Environment and Rural Development working group developed a series of six basic, "proposals for valuing the environmental functions of *campesino* agriculture." (Marielle & Aguilar 2003, p. 1). Proposal number one called on the Mexican state to, "revalue the multiple environmental, social, economic, and cultural functions that *campesinos* carry out as guardians of our natural resources." (Ibid, p. 2). The group pointed to fact that rural poverty and emigration was weakening the ability of *campesino* families and communities to continue to steward the country's natural resources, and argued that, in order to ensure that this traditional stewardship continued, the state should revalue *campesino* labor in a way that was, "not just words and promises, but which establishes mechanisms of economic compensation." (Ibid, p. 2). Not surprisingly, one of the primary policy foci of the working group was the expansion and reform of the recently implemented federal PSA-H program. As was discussed earlier in Chapters 2 and 4, the working groups pushed the policy makers at CONAFOR to include managed ecosystems as PES-eligible, raise per-hectare ecosystem services payments, channel more funds to low-income communities and restrict the number of private landholder beneficiaries (Alix-Garcia 2005). MECNAM continued their protests and direct negotiations and, after some bureaucratic and political resistance, US$9 million in federal funding was set aside for a second PES program, what was to become the PSA-CABSA program, which the Ministry of Finance allowed only if it were taken from the total allocated to the PSA-H program.

On April 28, 2003, President Fox signed an *Acuerdo Nacional para el Campo* (National Agreement for the Countryside), a document detailing the policy changes resulting from the negotiations with MECNAM-affiliated groups (Diario Oficial de la Federación 2003). After some resistance by CONAFOR, a design committee was formed that included representatives from CONAFOR, the original PSA-H design team, two government ministries, and six representatives from MECNAM's member groups. As one of the MECNAM representatives said, this committee, "was supposed to be a dialogue that combined the experience of government agencies and civil society organizations to create a program with real impact." (Interview June 16, 2006).

Those MECNAM leaders who engaged with the PES program saw it not only as a source of emergency funds for farmers already hard hit by previous neoliberal policies such as NAFTA and the post-structural adjustment from rural production subsidies and price supports, but also as an opportunity to convince state agencies, urban Mexico, and the industrialized North of the environmental value of low intensity, traditional rural agricultural and land stewardship. They sought to "revalue the countryside" by renewing respect on the part of the Mexican state and "society" for *campesino* contributions to the national economy and culture after decades of policies strongly biased against smallholder agriculture (Marielle & Aguilar 2003). As a MECNAM leader and director of a coffee growers' association said of PES, it is,

> "A new type of relation within a country and between countries. It is not just about sales and monetary gains, it is new a form of relationship: between the city and the countryside; industries and *campesinos*; developed countries and undeveloped countries; regions that are producers of waste and those that are producers of oxygen." (Interview November 22, 2005)

This vision of PES, not as an opportunity to introduce market-efficiency into conservation, but as a renewed recognition of the essential relationship between the traditional rural and the industrialized urban, is strikingly distinct from that of the PSA-H program design team and it was to have very specific repercussions in the policy design of the second PES program.

The design committee for the new PES program included representatives from CONAFOR, INE, SEMARNAT, the *Comisión Nacional de Agua* (CNA - National Water Commission), two coffee producer associations *Coordinadora Nacional de Organizaciones Cafetaleras* (CNOC - National Coordinating Committee of Coffee Producer Organizations) and the *Coordinadora Estatal de Productores de Café de Oaxaca* (CEPCO - State Coordinating Committee of Organic Coffee Producers of Oaxaca), two community forestry organization *Red Mexicana de Organizaciones Regionales Campesinas Autónomas* (Red-MOCAF - Mexican Network of Peasant Forestry Organizations) and the Unión Nacional de Organizaciones de Forestería Comunal (UNOFOC - National Union of Community Forestry Organizations), a recently created coalition of organizations implementing PES programs in the state of Oaxaca, *Servicios Ambientales de Oaxaca* (SAO – Environmental Services of Oaxaca), and UNORCA the previously mentioned national network representing *campesino* and indigenous organizations (UNORCA)[10].

As we have seen in Chapters 3, there had been an early and persistent political focus at the federal level on employing the PES program, at least rhetorically, as means to address rural poverty. As conceptualized by the original designers of the PSA-H program and by the current president of Mexico, the link between PES and poverty alleviation is relatively direct – if you pay people to not touch their forest, then they will be less poor and ecosystem services will be produced. But this approach does not address the wider causes of forest loss and ecological degradation, or the obligations of states to their impoverished citizens, much less the underlying causes of that poverty. Nor does it take account of complexities and inequalities in land tenure and resource rights, or locally and culturally specific landscape uses, resource

[10] See Appendix 1 for a description of each organization and its relationship to and interaction with the national PES programs.

values, and development aspirations. Consequently, direct payments have little to do with development beyond the short-term transfer of funds to landholders.

The MECNAM representatives on the PSA-CABSA design committee introduced very different, subtler conceptualizations of both "conservation" and "poverty alleviation". These activist negotiators objected to the idea, implicit in the PSA-H design, that PES was merely a financial incentive to landholders who would clear cut their trees unless they received payments. They viewed active human intervention, or management, as necessary to sustain both healthy rural communities, or "poverty alleviation", and healthy ecosystems. Without claiming that local land-management practices are always ideal, the MECNAM representatives depicted *campesinos* as knowledgeable stewards whose active intervention is often necessary to prevent environmental degradation. This understanding of inextricable web of relationship between the eco-social systems of rural Mexico was expressed in an evaluation of the PSA-H program published by a national level research NGO linked with community-based forestry issues and initiatives and to which a number of MECNAM leaders are connected, CCMSS (Mexican Sustainable Forestry Advisory Committee). The report states that, the PSA-H program promotes "rent-seeking" behavior in participants because it, "Does not require clearly defined actions and responsibilities in relation to forest management." (Merino-Pérez et al. 2004 p. 5). Or, as one of the MECNAM representatives of the PSA-CABSA committee put it, "The PSA-H program did not have a great impact on the communities where they were implemented because there was no requirement that they actively manage [the forest in the program], only that they not touch it." (Interview June 16, 2006). The CCMSS report warns that lack of requirements for active forest management makes enrolled forest, "Even more vulnerable than those that are managed for commercial production," and that the no-touch provisions could, over a long period, "Contribute to the process of abandonment of the forest and the people who live in forested regions." (Merino-Pérez et al. 2004, p. 6).

This view, that active management is needed for both poverty alleviation and the production of ecosystem services, manifested in a number of concrete policy changes first implemented with the PSA-CABSA program and later to all of the PES initiatives of the ProÁrbol program. In opposition to the initial PSA-H "no-touch" rules, the MECNAM representatives insisted that PSA-CABSA participants engage in active ecosystem management, and built into the policy design one-year funding for technical assistance to develop detailed management plans that became part of participant's PES "contract" (See Table 2.2). They also won the inclusion of agroforestry parcels, a recognition that even highly managed ecosystems can produce valuable services (See Chapter 4 for further details).

The representatives of the MECNAM recognized that rural communities face enormous financial and knowledge barriers in quantifying, monitoring and managing for environmental services and in creating or negotiating with existing market for the services produced. They also worried that the direct payment approach, with the annual payments from CONAFOR being deposited directly into the community treasurer's account with no stipulations as to how the funding would be spent, would do little to promote true and lasting community development. As the CCMSS report concludes, "Compensation with the PSA-H program is limited to economic payments, with no consideration of other types of compensation that various service users could support, such as: access to training and technical assistance, preferential markets, certification, etc." (Merino-Pérez et al. 2004, p. 9) (author's translation). The MECNAM members argued for and won specific funding for technical assistance for

development of management plans and for training of local extensionists. While these may seem like small changes, they represent an attempt to turn the simplistic notions of poverty alleviation first proposed by the designers of the PSA-H program and later supported by Mexico's president into true, meaningful and long lasting rural development.

MECNAM representatives preferred that the federal government continue to regulate and finance the PES contracts. They believed that if payments were generated from private sources, then industry "…would dictate what management must be done," while the government was more likely to allow local management autonomy (Interview 29 June 2006). They claimed that decisions based on the enviornmental knowledge of participants and the local or regional technical assistance providers, rather than on generic templates of "good management" imposed by industry, would be better for both communities and the environment. This view runs counter to the premise of the market-efficiency narrative that private buyers will best hold producers accountable for the quantity and quality of ecosystem services specified in market contracts, although it is consistent with the neoliberal goal of decentralized resource management. Whether the government should continue to be the primary ecosystem services "buyer" or whether PES programs should focus on developing private markets is part of an ongoing debate in Mexico.

The process of combining these two very distinct approaches and perspectives was a long and contentious process: more than thirty meetings were held before the new PES program's rules of operation were finalized in 2004. Following the first round of implementation of PSA-CABSA in 2004, the participation of MECNAM representatives in program oversight was challenged and program funding was reduced by half every year from 2004 to 2006 (see Table 2.1). CONAFOR attributed these cuts in part to low enrollment rates. However, from its inception, PSA-CABSA had received little backing or promotion from CONAFOR. One ECAM-affiliated NGO representative interpreted the funding cuts as, "a form of vengeance on the part of the government because the *campesino* movements forced them to the table and made them make concessions." (Interview, June 29, 2006)

In 2006 CONAFOR consolidated PSA-H, PSA-CABSA, and several other programs under the rubric of a single program, ProÁrbol, ostensibly to streamline administration. The PSA-H and PSA-CABSA oversight committees were disbanded. The new oversight committee selected for new ProÁrbol program represented a much less diverse, and subsequently less contentious group, with representatives from CONAFOR, SEMARNAT, and the "social, forest industry, forest management professional and academic" spheres but, no members from the original PSA-H National Institute of Ecology (INE) design team or from the MECNAM coalition (CONAFOR 2006, p 5). Although the Mexican World Bank office incorporated some of the disenfranchised MECNAM committee members into a PES policy advisory group, its members have no voting power in the new PES program.

Although then-President Vicente Fox had signed the National Agreement with the Countryside in April 2003, the federal agencies responsible for implementing promised changes found myriad ways to subvert the substantive changes that MECNAM had advocated (Rubio 2007). However, a primary leader of the MECNAM movement described the PSA-CABSA program as "one of the few processes in which the federal government accepted a multilateral process with the *campesino* and civil society organizations." This same leader said that he saw three main achievements that came from the participation of civil society in the formation PSA-CABSA policy: "That it was accepted that active management is not

antithetical to conservation; that the mulitifunctionality of ecosystems was recognized; and that, ultimately, that it is not just a payment but a true contract." (Interview, June 29, 2006).

It is clear that the MECAM coalition's involvement had a continuing impact on how those involved in PSA-CABSA negotiations conceptualized PES. As the director of PES programs for CONAFOR explained, his involvement taught him that, "You can't just give out the money and expect that it will cause conservation," but that active engagement of intermediary NGOs at the community level along with funding for technical assistance and monitoring are crucial. In expressing and even more profound change of view, he states that, "Before, I thought of *ejidos* as only resource degraders. I learned that often they degrade only because they don't have resources to invest in adequate management." (Interview Nov. 17, 2006). These changes in perspective influenced the integration of reforms from PSA-CABSA into the PSA-H program in 2006 and later played a role in CONAFOR's resistance to World Bank pressure to re-introduce market-efficiency priorities into the programs. Thus, while it led to very specific changes to policy, the participation of MECNAM members in the PSA-CABSA design process also brought about a certain amount of hybridization of "bureaucratic knowledge" as well (Rocheleau 2008).

Even as the role of MECNAM waned, innovations that these activists had introduced influenced the integration of reforms from PSA-CABSA into the PSA-H program. Funding for project development and technical assistance were included in PSA-H in 2006. Participants began to be required to submit forest management plans and to use a portion of their payments for management activities.

Although the MECNAM coalition eventually disintegrated as the result of internal conflicts and external pressures, the *campesino* movement in Mexico remains strong. In the beginning of February 2008, the majority of the member organizations of MECNAM joined together along with labor and student organizations on a march to Mexico City's Zocolo to commemorate the MECNAM protests five years earlier. Shouting, "*Sin maíz, no hay pais!"* (Without corn there is no country!), these *campesinos* again demanded the renegotiation of the agricultural chapter of NAFTA and an end to the government's neoliberal politics. As the one of the coalition's leaders proclaimed, "The imperialists want to burden their own crisis on Mexico's back and it is for this reason that [Felipe] Calderón does everything possible to pass structural reforms. But the government forgets that we are an invincible people, that we are the children of maize and that we will only die when the sun dies." (Pérez et al. 2008, p. 2)

Environmental Mestizaje[11] of Rural Social Movements

In mapping the evolution of the Mexican national PES program we can begin to see how, as has been documented with other rural social movements, MECNAM employed this particular environmental policy as a, "useful surface of engagement" (Escobar 1999, p 13) with the federal state (Bray 1997; Stolle-McAllister 2005; Harvey 2005; Peluso 2008; Scott & Barnett 2009). After decades of fighting the often covert and subtle repression of the PRI ruling party, and aided by links with international agrarian movements such as Vía Campesina, these organizations had become adept at appropriating environmental and social-liberal rhetoric,

[11] "Mestizaje" is a term generally used to refer to the ethnic mixing of Spanish and indigenous Latin American cultures. Starting in the 1930s and 40s, a cultural movement in Mexico began to create a sense of national pride over Mexico's "mestizoness". It still plays a large role in forming Mexican national identity today.

what the Mexican scholar Enrique Leff refers to as a process of, "environmental mestizaje" (2002) and Victor Toledo as, "ecological neo-Zapatismo" (2006, p. 3). The coalition of rural social movements that was MECNAM effectively adopted and 'hybridized' PES as a rhetorical tool. They positioned 'traditional rural stewards' as the suppliers of ecosystem services, effectively valuing the *labor* required to produce healthy ecosystems as opposed to disarticulated ecosystem services themselves. In the design of the PSA-CABSA program, MECNAM's representatives pushed for and won requirements for active ecosystem management, a separate PSA-CABSA payment program for highly managed agroforestry systems, and a stronger emphasis on targeting the program to marginalized communities. Recognizing that the degree of influence that MECNAM had on the evolution of the PES policy was unusual compared with the less successful initiatives negotiated for in the National Agreement with the Countryside, it still serves as an interesting and explicit example of the ways and means that a "hybridized" discourse directly influenced the specific conformation of a market-based environmental policy.

Just as hybrid seeds will often not breed true, the articulation of agrarian and social movements does not mean that both agendas will be equally expressed or that power between the two sets of actors will be equally shared. A study by Bunce (1998) of the farmland preservation movement in the United States and Canada, which had originated in an alliance between farmers beleaguered by developers and environmentalists interested in preserving open space, found that after thirty years the movement remained strong, but the voices and interests of the farmers themselves had disappeared from the discourse. Doane (2007) documented a case from Chiapas, Mexico in which the attempts of indigenous groups to create a community-based conservation area on their own terms was threatened when they allied with the regional office of WWF. The opposite may also be true, of rural activists who appropriate environmental discourse simply as a means to an agrarian end, what some of the farmers in Doane's study (2007) refer to as watermelons - green on the outside but pure red on the inside.

A number of scholars of Mexican rural social movements have theorized that their co-option of the language and the hybridization of the concepts of the international environmental movement is rooted in the fact that they are, "fighting against forces that seek to wrench [the *campesino* community] and the indigenous community, from whatever control of natural resources that they still hold – land, in the first place, but also biodiversity, forests, water, energy production and other raw materials" (Pickard 2004, p. 3). In his discussion of ecological neo-Zapatisimo, Victor Toledo (2006) reflects on the fact that the Zapatista and other indigenous and rural movements have adopted the language of "sustainability", but that in doing so they are, "projecting beyond its most common meaning," (p. 3) to a concept that is encompassing of the necessity of human intervention to maintain the health and productivity of "nature". Mexican scholar, Enrique Leff (1998), is more explicit in his explanation of the basic utility of rural social movements taking on environmental rhetoric. He says, "The displacement of traditional human rights for [a rhetoric of] environmental rights… [allows them to discuss] the rights to self-manage their conditions of existence, which implies a process of reappropriation of nature as a basis for their survival and condition to generate an endogenous and self-determined process of development." (Leff 1998, p. 70). In these scholars' view, rural social movements who adopt environmental language do so for the very pragmatic reason that it allows to make greater and stronger claims to the land and resources they manage.

Agrawal & Sivaramakrishnan (2000) have applied Foucault's theories of "biopoltics" to a process they refer to as 'striation', the desire of the state to partition "the landscape into distinct domains of natural existence and productive economic relations." (p. 2), in an attempt to "rationalize the problems presented to governmental practice." (Foucault 2008, p. 73). But this process of disarticulation of natural vs. agrarian landscapes has perhaps been less possible in Mexico, the warnings proclaimed by Pickard (2004) above aside, than in other countries precisely because so much of the mostly marginal land that would later become of particular interest to conservationists was early allocated to peasant and indigenous groups to be held communally. Even after the 1992 reform to the constitution that allowed for privatization of communal lands, as of 2005 51.6% of Mexico's total territory and an estimated 80% of the country's forest land was held by *núcleos agrarios* (Bray et al. 2005; Appendini 2008). The predominant overlap of agrarian and "pristine" landscapes in Mexico has led to conservation strategies by both the state and environmental NGOs that explicitly recognize the concepts of "wise use" (i.e. community-based conservation zones, biosphere reserves, etc.). Whereas in other countries the 'occupation' of state-held protected or "natural" areas or other by peasants or indigenous groups who are granted some degree of access may be the norm, it is rarely recognized as legitimate or full tenure (Ribot & Peluso 2003). MECNAM's co-option of the PES programs might not have been as successful, nor the hybridization of the concept to represent an economic support of traditional rural stewardship been so complete, if *campesinos'* tenure rights to the land on which ecosystem services are being produced did not have such strong historical and legal legitimacy.

Conclusions

Some Mexican activists, indigenous spokespeople as well as intellectuals, denounced the national PES program from the start, suggesting that such market-based mechanisms could only disempower the rural poor. However, some of the organizations that were initially wary of PES were later integrally involved promoting the program and the concept. The leadership of the National Union of Regional Autonomous Peasant Organizations (UNORCA), a national level coalition of peasant organizations that was seminal in the formation of MECNAM, was at first hostile to the idea of including PES as part of the movement's demands. They had been among a number of the MECNAM constituent organizations that had, in the month before the 2003 protests in Mexico City, led a protest against a number of market-based conservation measures being implemented in the Lacandon region of Chiapas, calling bioprospecting agreements, ecotourism and the commercialization of non-timber forest products, "A new form of plundering the lands and resources of indigenous communities by private interests and transnational companies." (UNORCA 2002). And yet one of UNORCA's leaders agreed to serve on the PSA-CABSA design committee, and by the time of the organization's national level meetings in 2009, "environmental services providers" were counted among their 2,792, "regional and grass-root" constituent organizations (UNORCA 2009). In an analysis of the potential hazards involved when UNORCA and other producer organizations accept funding from government agencies or transnational organizations, Lindemann (2006, p. 55) suggests that establishing or buying into PES schemes may be a way to remain autonomous by capturing the, "perhaps scarce but not unimportant monetary resources that circulate in the rural

economy."

The MECNAM leaders who engaged with the federal PES programs attempted to reshape the program and the wider discourse by placing social justice at the center of the PES agenda and linking the goals of conservation and cultural survival. The contestations over PSA-H and PSA-CABSA in Mexico concerned whether these programs could generate a new category of value for the functions of ecosystems, and if so, who would measure these values and who would capture them. Those MECNAM leaders who engaged with the PES program saw it not only as a source of emergency funds for farmers in desperate straights, but also as an opportunity to convince state agencies, urban Mexico, and the global North of the environmental value of low-intensity smallholder agriculture and land-management practices. In this way they sought to appropriate PES as part of their much broader political project to "revalue the countryside." In engaging directly with the designers of the national PES programs, the MECNAM representatives substantially altered the final form of the national PES programs. In fighting for requirements and funding for active ecosystem management, the training of local extensionists and for payments for agroforestry systems, these actors introduced a more holistic understanding of "ecosystem services" and how they are produced. In challenging the designer's original emphasis on market development, the MECNAM representatives reinforced the move toward greater state control of the PES programs.

Porter and Craig (2004), in discussing the potential spaces for contestation of contemporary neoliberalism, claim that, "Political activism matters, and spectacular street protest has certainly had an effect: but the costs of this kind of self-exclusion are specifically what this system is designed to raise. The alternative, clearly popular with third sector organizations and community groups, is to work 'included' within the system… to exploit the small openings made by participatory rhetoric and the ongoing need for popular legitimation." (Porter & Craig 2004, p 417). What is apparent from the history of the PSA-CABSA program is that the MECNAM members who pushed for a reformed PES program have employed both of these methods with some success. Instead of choosing radical activism vs. working from the inside, these actors used both techniques with some success. It was the "spectacular street protest" and resulting negotiations in 2003 that pushed the Fox administration to form the second PES program and allow MECNAM representatives on the design committee. That, after two years, they were eventually denied voting rights and relegated to a World Bank-led advisory committee would seem to suggest that these rural radicals had been pacified with promises of "participation" only to be excluded from any position of power or influence. I would claim, however, that this particular "opening" for contestation was not "small", but that real and substantive changes in policy and perception were brought about through their participation. And though the MECNAM coalition was eventually to fracture, their representatives on the PSA-CABSA committee and the organizations and constituencies they represent continue to participate in both the radical political activism and to work with and even within the Mexican government at various levels.

Josefina Aranda of the coffee association CEPCO, one of the leaders instrumental in putting PES on the agenda of MECNAM has said, "There are huge contradictions between the perspective of the neoliberals who promote [PES] programs from the World Bank, etc., and those of us from the Mexican countryside. The fact that we were both interested in developing payment for environmental service programs was just a lucky convergence of interest." (Interview November 30, 2005). What remains to be seen, a topic I will explore further in

Chapter 6, is just how “lucky” this convergence of interests will be for the rural communities of Mexico.

Chapter 6

Neoliberalism's Double Bind: Devolution, Privatization and the Imposition of Free Market Conservation

Introduction

Thus far, I have focused on the ways in which federal politics, contestation by rural social movements, and the institutional context of the ecosystem services themselves worked to hybridize the design of the national PES *policy*. But what of the process of *implementation*? It would seem that a PES program's interaction with participating individuals and communities, the extent to which participants adopt both the conceptualization of nature's services as commodities and the grounded practices the payments are intended to incentivize, should be the final test of whether and by how much the original, market-oriented intentions were altered. The policy makers at both the international and national level who conceived of and designed the national PES program expressed specific and very ambitious goals of introducing market-efficiency into conservation in Mexico through the commoditization of ecosystem services. In examining the many obstacles faced in imposing the discourse and the practice of this neoliberal environmental policy onto the rural communities in which it was implemented we begin to see the double bind of neoliberal environmental projects: that the commodification of ecosystem processes requires the intervention of the state, but the state is unable to intervene due to earlier neoliberal projects privatization and decentralization and devolution of power and access.

In the following chapter I analyze the ways in which the Mexican national PES program interacted with the communities and small-holder private property owners with whom it was implemented. I first provide a generalized description of the ways in which the PES programs have interacted with the communities in which they were implemented to influence: 1) reproduction at the local level of the discourse of ecosystem services as commodities and the development of private markets; 2) alteration of grounded forest/agroforest management practices. I then examine the ways in which pre-existing local conditions, including the presence and quality of an intermediary organization, the degree of dependency of local livelihoods on forest products, and the degree of institutional capacity at the local level influenced the processes mentioned above.

Rural Context in Mexico: The Impacts of Neoliberal Reforms

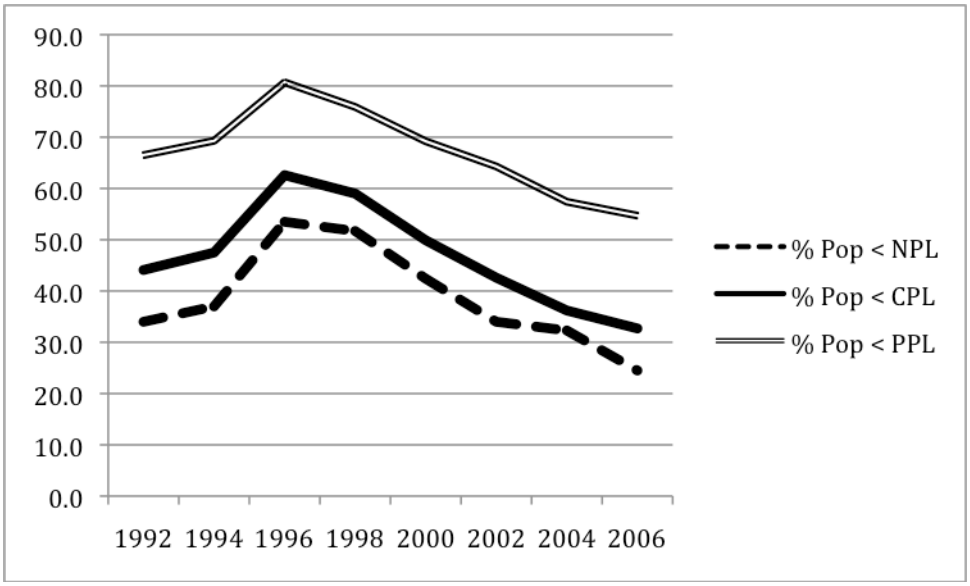
In Chapter 3 we examined the history and current state of the federal politics of rural poverty in Mexico and the ways in which the state has progressively pulled back from support of productive activities, the remaining intervention being focused on basic social services and the prevention of social unrest. In Chapter 4, we reviewed the ways in which the Mexican state has managed to maintain bureaucratic and legal control of natural resources in ways that have directly thwarted the market aspirations of the original PES policy designers. In Chapter 5, we

saw how the rural reaction to the structural adjustment-mandated lifting of agricultural trade barriers and the concurrent withdrawal of state support combined with increasing political democratization to allow for the formation of rural social movements and a civil society at the national level. In this section I will discuss the current social and economic context of rural Mexico and the development of a grounded, interventionist civil society in the void left after the withdrawal of the state.

Many have argued over whether Mexico as a whole has benefited from the twenty-year period of neoliberal reforms (de Grammont, 1996; Loyns et al. 2001). What is clear, however, is that Mexico's *campesinos* have not. Even the organizers of the pro-trade liberalization Agricultural and Food Policy Systems Information Workshop state, "There was a consensus of workshop participants that Mexico and Canada have benefited from NAFTA, that processors of higher-valued products in all three countries were the greatest beneficiaries, and that small Mexican producers were the biggest losers." (Loyns et al. 2001 p. vi). With the influx of cheap and highly subsidized grains, primarily corn, from the United States, the cost of production for small farmers has become greater than what they can earn. With the dismantling of state run agricultural marketing institutions and farmer's unions, small farmers have no way to access the market even if they had something to sell (Lara Flores 1998).

If measured purely on the basis of household income, rural poverty would appear to have decreased since the peso devaluation crisis that began in December of 1994 (see Fig 6.1). But these basic figures are deceptive. For one, based on this same metric of household income, during this period rural poverty was consistently two to three times greater than poverty levels in urban areas (Hernández & Trigueros 2008). In examining poverty within Mexico between 1992-2002, the distribution of "extreme poverty" stayed fairly consistently at 75% for rural vs. urban areas (Casais Padilla 2009). In a more complex measure of poverty employed by the Mexican National Council of Population (CONAPO), referred to as "degree of marginalization", between 1990-2000 the number of rural municipalities classified as having "high" or "very high" degrees of marginalization has remained surprisingly constant (Bistrain Coronado 2008). Of particular relevance with regards to the national PES programs is that over 50% of the population in Mexico's forested areas lives in "extreme poverty" (Merino-Pérez & Segura-Warnholtz 2002).

Figure 6.1. Rural poverty levels in Mexico according to household income 1992-2006*. NPL (Nutritional Poverty Line) = a household income level insufficient to cover basic nutritional needs; CPL (Capacity Poverty Line) = a household income level sufficient to cover basic nutritional needs *but not* the costs of health care and education; PPL (Patrimonial Poverty Line) = a household income level sufficient to cover basic nutritional needs *and* the costs of health care, education *but not* clothing, transportation and shelter (Hernández & Trigueros 2008).



* Based on figures provided in Hernández & Trigueros (2008 p. 5), originally generated by the Consejo Nacional de Evaluación de la Política de Desarrollo Social (National Council of Evaluation of Social Development Policy) of Mexico.

Since de Janvry (1981) published his treatise on the process of functional dualism, the balance of rural-urban migration and production has shifted. During the 1970s and early 1980s, migration in México was primarily seasonal with men, or occasionally entire families, leaving rural communities to seek seasonal work in the industries or industrial agriculture of their own country or the U.S., to then return to their own land in time to maintain subsistence production (de Janvry 1981; Thomas, 1985; Barry 1995). Currently, an estimated 80% of small farmers in Mexico spend the majority of their time away from their land working primarily as day laborers (Barry 1995), but both the amount of time that is spent on off-farm labor and the number of rural residents who have permanently migrated to the cities or to the U.S. has increased (Barry 1995; Lara Flores 1998). In 1980, 87% of Mexico's population resided in urban areas, but that number had grown to 94% by 2004 (Casais Padilla 2009). An estimated 400,000 people per year cross the border between Mexico and the United States between 2000-2005, the majority from rural areas. In 1994, the year that NAFTA was ratified, 2.9% of "economically active" Mexican citizens, 3.8 million people resided in the United States. Ten years later, in 2004, the number had grown to 4.6%, representing a total 6.7 million workers (Casais Padilla 2009).

As was mentioned in earlier chapters, Article 27 of the post-revolution, 1917 Mexican constitution allowed for agrarian reform and while the federal state maintained ultimate

ownership of rural lands, peasant (*ejidos*) and indigenous (*comunidades*) associations, collectively referred to as *núcleos agrarios*, were granted long-term, stable usufruct rights (Bray et al. 2006). Through subsequent iterations of rural land redistribution an approximate total of 50% of Mexican territory and 80% of total forested lands were assigned to *núcleos agrarios* (Merino-Pérez & Segura-Warnholtz 2002; Bray et al. 2006). In 1992, under the presidency of Salinas de Gotieri and with advisement from the World Bank, Article 27 was reformed so as to allow for the parecelization and privatization of *ejido* agricultural lands, though indigenous communities (*communidades*) and any communally-held forested lands were exempt (de Ita 2003; Bray et al. 2006; Instituto de Investigaciones Juridicas 2007). A federal program, PROCEDE, was established to delimit all *núcleo agrario* internal and external boundaries, with the intention that clear cadastral records would facilitate land privatization. There is quite a bit of debate among scholars of rural Mexico concerning the type and degree of impact that the PROCEDE program has had. However, all generally agree that the percentage of *ejidos* that have chosen to dissolve and privatize their agricultural lands is much lower than was hoped for by the state or predicted by these same scholars (de Janvry et al. 2001; Nuijten 2003; de Ita 2006; Appendini 2008; Wilshusen 2010).

Impacts of Decentralization, Devolution and Privatization on State Intervention in Rural Mexico

As I discussed in some detail in Chapter 4, the process of decentalization and devolution of the legal and bureaucratic control of natural resources by the federal state, an important element of the long process of structural adjustment, was to a great extent incomplete. However, as was discussed in to some extent in Chapter 3 and in greater detail below, the withdrawal of the federal state from direct involvement in the economic and cultural life of rural Mexico was much more decisive.

As has been mentioned in previous chapters, the various waves of structural adjustment that have washed over Mexico since the early 1980s, combined with free trade agreements such as the GATT and NAFTA, have resulted in the federal state's almost complete withdrawal from direct intervention in rural production, marketing or product price controls. The disappearance of state institutions such as CONASUPO (*Compañía Nacional de Subsistencias Populares* -National Company for Popular Subsistence), which guaranteed purchase of basic grains and set prices for corn, INMECAFE, which provided similar services for coffee producers, and BanRural (*Banco Nacional de Crédito Rural* – National Rural Credit Bank), a state-run bank which provided credit to *núcleo agrario* members who could not use their commonly held property as collateral combined with the privatization of PRONASE (*Programa Nacional de Semillas* – National Seed Program) and FERTIMEX (*Industria Mexicana de Fertilizantes* - Mexican Fertilizer Industry), previously state-run programs that provided subsidized seeds and fertilizers, have all impacted the degree to which small holder farmers rely on and interact with federal state agencies (Aranda Bezaury 2003; Keleman 2010).

Historically, the forestry sector in Mexico was subject to even a greater degree of direct intervention and regulation by the state than was agricultural production (Merino-Pérez & Segura-Warnholtz 2005). Agrarian reform in Mexico, particularly the land distribution of 1958-1976, left approximately 80% of forested lands under the legal control of *núcleos agrarios*.

However, a combination of federally mandated, import substitution-inspired concessioning of *núcleo agrario* forest lands to private and parastatal companies, federal bans on extractive activities in communally held forests, and active intervention of agrarian reform officials in land management decision-making meant that communities had little access to or control over their own forest resources (Bray et al. 2006). As many scholars have noted, this system created a, "strong paternalism that kept *campesinos* tied to the agrarian bureaucracy" (Merino-Pérez & Segura Warnholtz 2002, p. 12), which, "had not been organized to maximize the potential for successful cooperation in the management of community affairs, but principally as an instrument of political control and state intervention in resource use." (de Janvry et al. 2001, p. 10). Beginning in 1986, the federal state began to withdraw from direct intervention in forest ownership and management. A 1986 law ended the practice of federal concessioning of *núcleo agrario* forestlands. The 1992 reform of Article 27 of the constitution, while effectively ending agrarian reform and allowing for the privatization of existing *ejido* lands, in some ways also strengthened communal property rights: by shifting actual ownership land from the federal state to the *núcleos agrarios*, who had previously only had usufruct rights; by prohibiting the parcelization and privatization of communally held forest lands (these would revert to state ownership if *ejido* were dissolved); and by allowing for the formation of subcommunal forestry enterprises and permitting joint forest product ventures with private companies (Merino-Pérez & Segura Warnholtz 2002; Bray et al. 2006).

Federal extension and technical assistance programs in Mexico have, through a combination of the fiscal cutbacks necessitated by the 1995 debt crisis, the increasing focus on agroindustrial-scale vs. small-scale production, and the on-going politics of decentralization and privatization, also been severely curtailed (Bray et al. 2006; Hernández & Triguero 2008; Keleman 2010). Federal agricultural extension services were fairly drastic down-sized or subcontracted to private services. A number of cost-sharing measures were also employed, including: direct annual fees paid by the producer; charges for specific services such as soil testing, animal feed formulation, etc; and requirements that agricultural insurance and credit institutions pay for the public extension services of their customers (Umali & Schwartz 1994). While the degree to which producers were required pay to for extension services was to some extent graduated according to income, poor small holders were still at a great disadvantage (Umali & Schwartz 1994). The diminishing reach of the federal agricultural research and extension services, managed broadly under various iterations of the *Alianza* programs, have left the federal state with little means to either influence or monitor small-scale agricultural production (FAO/SAGARPA 2003; Keleman 2010). The same is also true in the forestry sector. Forestry extension and technical services had from the 1940s on been the sole province of the federal state (Bray et al. 2006). A series of four relatively radical reforms to federal forestry law between 1986-2003, along with cut backs to the forestry extension services through Secretary of Agriculture and Hydrological Resources (SARH), led to the almost complete privatization of forestry technical assistance services (Taylor 2000; Merino-Pérez et al. 2004; Bray et al. 2006). While in some areas the gap in technical assistance provision was filled by private contractors or civil society organizations (Fox 1996; Taylor 2000), as we shall explore below, the current iteration of the forestry service in Mexico, the *Comisión Nacional Forestal* (CONAFOR), still remains with very little capacity to directly promote or monitor forest management programs.

Methods at the Community Level

As was mentioned in the Introduction chapter, my dissertation was designed as a multi-sited ethnography. Since the intent of my research at this scale was to examine the variation of local-level issues and impacts occasioned by the national PES programs, my sample selection was designed to measure these effects under a wide range of circumstances. Based on six months of preliminary observations and interviews with program designers, CONAFOR staff and project intermediaries, I chose five independent variables by which to stratify my sample of participants: type of PES program; Mexican state; type of land tenure arrangement; type of intermediary; and primary economic activity. A total of 32 sites were selected. As can be noted in Table 6.1, the relatively small total number of sites and the high level of stratification left few sites in each category negated the likelihood of finding statistically significant results, but as the only quantitative analysis I intended to employ was purely descriptive this limitation was not an obstacle.

Table 6.1. Variables by which the sample of the 32 community-level sites were stratified.

Variable	Categories	Number of Sites
PES program*	PSA-H	20
	PSA-CABSA (Carbon Capture = 4; Biodiversity = 5; Improvement of Agroforestry Systems = 3; Conversion to Agroforestry Systems = 1)	13
State	Oaxaca	12
	Guerrero	9
	Jalisco/Colima	11
Land tenure	Indigenous Community	4
	Ejido/ Bienes Comunales	22
	Cooperative	3
	Private Property*	3
Technical service provision	NGO (Civil Society Association)	13
	Private Contractor	5
	Government Agency	9
	None	5
Primary Source of Income	Forestry	9
	Coffee	5
	Other Agriculture	8
	Employment outside of community	10

* The fact that the category "Type of PES Program" totals to 33 not 32 sites is that one site in Guerrero was implementing both carbon capture and a conversion to agroforestry systems projects, though officially CONAFOR only allows one PES project per site.

* This figure is somewhat deceptive. Of the 3 private property sites, two were actually groups of small holders managing the PES program as a collective (see below pg. 69)

Although I attempted to pre-select sites from the complete list of PSA-H and PSA-CABSA participants, in making the initial contact I was, with the exception of a few communities, reliant on intermediary organizations or individuals who had already worked with the community. This tended to bias my sample toward those communities that were working with intermediaries to implement the PES program, though there were certainly still a good number of sites in which the relationship was dysfunctional if not outright hostile.

Data Collection

Data for this section of my research was collected from three sources: community level, semi-structured interviews; unstructured interviews with individuals who served as intermediaries between the participants and CONAFOR; and data sets from Mexican government agencies.

The principal data was collected through semi-structured interviews with the representatives from each site primarily involved in the implementation of the PES program (see Appendix 1 for the master semi-structured interview guide). A total of **102** people were interviewed at this level. In the *núcleos agrarios*, legally mandated councils, called the *Comiseriado de Bienes Comunales* (the Commission of Communal Assets), oversee the allocation and use of all communal lands. They are elected by the general assembly of the community and generally serve terms of three years. In the great majority of the *núcleo agrario* sites I interviewed the president of the *Comiseriado*. Depending how the PES project had been implemented and who had been most involved, I also interviewed other members of the *Comiseriado* and/or the heads of other community councils (e.g. the head of the forest management council in communities with productive forest management, etc.). In the case of cooperatives, I interviewed the president and as many of the rest of the governing board and members as possible. In the one "true" case of private property participation (see below for discussion), I interviewed the owner.

There are some obvious biases introduced by my choice of interview subjects. Although I originally attempted to conduct these interviews with a stratified random sample of members of three of the communities where the PES projects were implemented, preliminary results revealed that the majority of community members had very little awareness that their communities were participating or, even if they did of why CONAFOR was giving their community money or how it was being used. While this is an interesting result in and of itself, it was not useful in answering more subtle questions about how the program was perceived and the impact of the funds on environmental management practices, I decided to expand the number of sites and interview only those individuals with some direct involvement in project implementation. One of the biases this choice introduced was that, because I was primarily interviewing the officially recognized leaders of the community and because the questions I was asking has to do with land use and access, I primarily spoke with men and, though the functional *núcleos agrarios* are surprisingly egalitarian, with men who had power at the local level.

I also conducted unstructured interviews with **45** individuals who had been integrally involved as intermediaries between CONAFOR and the participants. These were the extensionists and/or administrators of community-based non-profit organizations, CONAFOR extensionists hired specifically to implement the PES programs, and private forestry

management contractors. In most cases, these interviews were conducted after I visited the site and so could ask very specific question about what I had observed there. I also attended a number of internal meetings of some of the non-profit organizations and of these intermediaries with program participants.

All of these interviews were conducted between October of 2005 and June of 2007.

CONAFOR and Technical Assistance Provision for the Federal PES Programs

With the national PES programs, "technical assistance" has been provided primarily by NGOs and private contractors. As was mentioned in Chapters 3 and 5, early iterations of the PSA-H program did not require any type of forest management: CONAFOR simply provided a per hectare annual payment to the recipients and with no restrictions on its allocation. This led to allegations from participants of the technical assistance providers charging exorbitant prices for helping with the application, serving as an intermediary with CONAFOR, etc. (Interview 7/17/08). Partially in response to these complaints, the PSA-CABSA program, first implemented in 2004, required that applicants submit detailed management plans and also allocated set amounts of funding for technical assistance. In 2006, the PSA-H program adopted the same requirements. It also prompted CONAFOR to develop a list of "certified" technical assistance providers, but certification consists only of providing academic credentials and/or proof of federal status as a civil society organization with no criteria to measure quality or honesty. The CONAFOR regional offices are barred from recommending particular technical assistance providers, being allowed only to refer applicants to the certification list (Interview 6/22/06). In interviews, both participants and technical assistance providers complained of lack of quality control.

CONAFOR's direct involvement in the PES program promotion, implementation and monitoring is incredibly limited. Regional offices are only responsible for accepting and processing applications and for monitoring program results. Monitoring consists of a yearly, day or half day-long visit to each PES program site, during which the CONAFOR official asks the people responsible for implementing the project how they spent the funds, what program-related management activities they engaged in, and take at least five GPS points from the enrolled area to be used for ground truthing a later remote sensing analysis of rates of deforestation. In an attempt to cut costs and limit the formation of a permanent federal bureaucracy, the majority of the regional personnel, including those responsible for the implementation of the PES programs, are hired under short-term contracts. Lack of employment security means that the most qualified personnel often leave for more permanent positions. This high turnover rate in turn means that the regional PES program teams often have little experience with the program guidelines nor knowledge of or long-term relationships with program participants.

As will be discussed in detail below, the inexperience of the CONAFOR PES program teams combined with a limited ability and mandate to promote or monitor greatly weakened CONAFOR's ability to influence the reproduction of the concept of ecosystem services as commodities, the creation of markets for ecosystem services, or the change in management practices that would "produce" ecosystem services.

Reproduction of the Discourse of Ecosystem Services as Commodities

It was clear from the vast majority of interviews in the rural communities where the Mexican national PES programs had been implemented that participant's understanding of "nature" and its value had been little altered.

In the interviews conducted at the local level, most rural participants (those who aware that they were participating) appreciated the federal PES programs, stating some variation of, "what's not to like about getting money?" It did appear, in fact, that participants in the 2003-2005 iterations of the PSA-H program, which put no restrictions on the use of funds, were those with the fewest overall complaints. However, there was also a surprisingly ubiquitous lack of awareness of the basic stated purpose and goals of the programs, even among those participants most involved in project implementation. Most PES program participants viewed the funding not as a payment for commodities to be produced and traded, but as a subsidy from the government in recognition of the valuable contribution to the national welfare provided by their environmental stewardship. Interviewees generally viewed their active management of the landscape as essential to its health, and understood the payments as compensation for doing so. As one respondent enrolled in the PSA-H program said,

> "If this program ends then the mountain will be left alone. If there is no money, we cannot keep living here. If we are not here to protect it, people will come and cut all of the forest or the trees will fill with pests and disease" (Interview June 6, 2007)

The fact that participants viewed the payments as subsides is not at all shocking considering the long history, detailed in the second section of this chapter, of pervasive federal involvement in rural economies and that even now a number of federal programs (PROGRESA, etc.) still offer direct subsidies. It is indicative that the two complaints I heard most often about the PES programs were: 1) from communities whose payments had been cut because part of their enrolled forest had been destroyed; and 2) that the government should continue the payments after the 5-year period of the program was up. Both of these complaints exhibit the participants' lack of awareness of one of the primary credos of the neoliberal view of PES, that program contracts are "conditional" on conservation of the ecosystem being contracted for, in an attempt to mimic a market, or that there was any intention on the part of CONAFOR that the communities should have been looking for private markets for their ecosystem services during the five year terms.

The majority of the participants were also unfamiliar with the term or the concept of "ecosystem services". The exceptions were community leaders who had been actively involved in soliciting and implementing the PES program, vs. those who had relied on an intermediary, and/or participants whose intermediary contractor or NGO had more actively promoted the concept. But even in these cases, there was confusion and mistrust. As a participant in Oaxaca enrolled in a PSA-CABSA carbon project said,

> "The extensionists told us that, if we planted trees, they would grab onto air called carbon, and that we could sell it. All I could think was, 'I wonder how they will harvest this carbon. Do you think they will come with buckets to take it away?' I was shaking when I left the meeting." (Interview June 19, 2006)

In this statement we see this participant's misunderstanding of the very basic premises on which the concept of market-efficient PES is built – that a component of his environment of which he was previously unaware has a monetary "value". But it is also clear that the idea of linking with external markets inspires apprehension. Since all ecosystem services are by definition produced in situ, fear of the invasion of external market agents to impose rules on the management of or even "take" the land on which the ecosystem services are produced through a process of "accumulation by dispossession" (Harvey 2003) seems both logical and valid.

Few program participants had had success at marketing their ecosystem services. As was mentioned before, very few of the participants themselves even understood that that was a goal of the program. In a number of cases the intermediary individuals or organization were actively trying to create or connect to markets for ecosystem services, but in all cases they lacked the requisite knowledge and skills. It is perhaps unreasonable to expect that people with vast experience in community based development and/or conservation (in the case of the intermediaries) or forest management (in the case of the CONAFOR personnel) will have the requisite skill set to "create" markets or even to link with existing ones.

Markets for the ecosystem services produced by the CONAFOR program participants have been slow to materialize. The preliminary, five-year contract is now up for the first cohorts and, against the expectations of program designers, very few of the project participants were able to "create" markets for their ecosystem services. Of the thirty-two sites studied, only three found external "buyers". In all three cases, the intermediary organizations, NGOs with long histories in the participating communities, had spent ten plus years developing these "markets". In one case, an arrangement was made by which the capital city of Colima pays a fee to upstream farmers for management practices that are thought to increase hydrological services. The other two are cases are forest-based carbon offset projects that have sold on the voluntary market to Mexican companies, one with a matching donation from the CONAFOR. In both cases, the "sales", to a bank, pharmaceutical company, etc., feel suspiciously like donations made to improve the eco-images of the companies concerned.

Interaction with Grounded Forest or Agroforest Management Practices

Hybridization of 'natures' can also be enacted through the grounded practices of environmental management. In examining the ways in which the national PES programs had interacted with pre-existing local level practices, institutions and social norms, it became clear that the calculus of PES expressed by international policy makers, and which served as the discursive foundations of the PSA-H program, in which a direct financial incentive is applied to rural participants not to touch their forest who would, given the opportunity, of course raze it to the ground, vastly oversimplifies the degree to which rural participants are dependent on "nature", the degree to which the health of rural environments are dependent on active and skillful intervention, and that the humans who manage them have other than economic rationales for doing so.

Of the thirty-two participant sites studied, 75% entered land that was not at risk of deforestation or degradation by the owners. To the World Bank advisors or the original designers of the PSA-H program, this result would signal that their intent to incentivize landowners to conserve who would otherwise have deforested had failed miserably. However,

the great majority of the participants interviewed, 94%, had chosen to reinvest a significant portion of the payment in ecosystem management activities (i.e. fire breaks, fire fighting equipment, pest and disease control, fencing to keep out livestock, patrols against illegal logging or poaching, etc.) whether they had been obligated by their contract with CONAFOR or no. So, while the land enrolled in the PES program might not have been under particular threat of degradation from its various owners, the payments themselves allowed those owners to be better stewards by either improving their own management or by limiting access to outsiders.

Again negating the simplistic conception that these payments should be targeted to participants whose risk of deforesting is highest, I found that while the majority of participants chose to employee PES funds to change forest or agroforest management practices, the "quality" of the change and the degree to which practices was improved appeared to depend much more heavily on the level of pre-existing institutional strength and human capacity than on the size of the payment.

There are of course the obvious explanations for why some of the land entered into the national PES program was at low risk of deforestation: the forest was on highly sloped land or far from roads, making it impossible to extract timber; so many of the *núcleo agrario* members had emigrated that demand for new agricultural lands was severely diminished, etc. all of which have been explored in previous literature on deforestation trends. But there are any number of subtleties to both the reasons and the ways and means that the forests in entered into the PES program were at low risk of outright clearing.

As was mentioned in Chapters 4 and 5, there was serious contention among both the PSA-H and PSA-CABSA design teams over whether to allow communities with active timber management programs to enter the PES programs. A number of the *núcleos agrarios,* and one cluster of private properties, where I interviewed had active timber management program in place. These communities usually placed forest into the program that was in the process of regenerating, with the understanding that it would eventually be harvested for timber and other wood products. While this might seem perverse, to pay for the conservation of an ecosystem that will inevitably be disrupted and at to the economic benefit of the owners. However, it is first important to note that the harvest rotations in these primarily pine or pine-oak forests are very long, between 25-40 year cycles. More importantly, it is likely that while the forest is there, it will be managed very well because these communities have an added economic incentive to see that it is conserved, at least until harvest. And, as was mentioned before, the funding from the PES programs were, especially in these cases, most often re-invested in improving forest management, most often into bolstering protection again fire. This is not to claim that all management activities carried out by these communities necessarily improved the "conservation value" of their forests. In some cases management practices that increase the quality and yields of timber (i.e. single species preference, clearing of understory) might be antithetical to the production of such ecosystem services as biodiversity conservation and beneficial to others, such as water quality and quantity.

Another case of "pre-conserved" forestland being entered into the PES programs, were with communities that had active agroforesty management, especially those who were already receiving premiums for organic or shade-grown coffee. In these cases, while it is likely that the agroforests would be continue to be maintained, payments from the PSA-CABSA improvement of agroforestry system projects allowed the farmers to offset the cost in decrease in production

that occurs with the high shade tree density required to produce secondary benefits such as biodiversity conservation, improved water infiltration and purification, etc. The program also specifically funded the technical assistance and direct costs for construction of tree nurseries, which allowed participants to increase the shade tree diversity with multi-use species that served as both habitat for biodiversity and income diversification for the farmers. The payments also served as buffers the extreme price swings associated with coffee commodity production, thereby allowing the farmers to continue to stay on and manage the land.

And lastly, in communities whose members had significant external sources of income, either from *remesas* or commuter work in nearby cities, and were no longer actively harvesting the local forest resources, there was a very good chance that the forest would have been "conserved" even without the payments. However, these cases were also consistently accompanied by a decreasing interest on the part of the community members to actively engage in forest management to maintain forest health. While the forest might not have been clear-cut by its owners, it was left vulnerable to the threat of fires, pests, illegal loggers etc. The payments allowed these communities to increase the effort to maintain their forests, and, in a number of cases, managed to increase the interest held by *núcleo agrario* members in actively managing their own resources, in essence an internal "revaluing of the countryside" and of active rural environmental stewardship.

The attitude that PES programs should be targeted only to areas at high risk of deforestation shows and ignorance of the integral part that humans play in managing and maintaining these systems. It also overestimates the weight that these payments can play in the decision to conserve or not to conserve. Unless the forest owners have alternate reasons, economic or otherwise, to conserve their forest and the pre-existing knowledge and skills to be able to do so, simple, direct payments were not likely to be enough to convince them to do so.

The Importance of Institutions and Collective Action

It seems a bit obvious to state that institutions and collective action are important factors in the management of natural resources, especially when considering the most recent Nobel Prize winner in Economics, but again, in this notion that a simple payment will stop deforestation that pervades both the international discourse and the policy structure of the Mexican national PES programs there is little recognition of the potential impact or importance of either.

One of the interesting results of the research at the local level, and one that speaks to the importance of institutional strength and cooperation in these types of programs, is that collective management seems to be the optimal way for small holders to participate, even in cases where the land is legally registered as individual private property. Of the three private property sites I sampled, one in the Sierra Sur of Oaxaca implementing a PSA-H project was counted by CONAFOR as eleven separate private property participants, although in fact all of the participating "private property" holders were members of a forestry management and marketing cooperative and were therefore managing the PES project as a collective. Another site, in Jalisco and also implementing the PSA-H project, was registered as fifteen separate private property participants, a clustered group of vacation homes outside of a national protected area, but the PES project was being managed collectively by a property owner's association. The opposite case is also true. One site on the coast of Guerrero that was

implementing a PSA-CABSA Conversion to Agroforestry project on fields formerly used for basic grain production. Although the agricultural lands were collectively owned on paper, the governance of the *ejido* had been weakened by a combination of the presence of drug runners who used the pueblo as a base and who discouraged any type of collective action and the fact that the *ejiditarios* had ceased to rely on their natural resources for subsistence or income, most commuting to a nearby city to work. As a result, there was little capacity for local collective decision-making or management of the collective lands. The NGO who was the intermediary organization in charge of the project had great difficulty in all aspects of the project that required collective action, including creation of a tree nursery and planting and care of the saplings. The project was suspended by CONAFOR three years after it's initiation due to lack of results.

Another, again not surprising result given the almost complete absence of federal rural extension and technical services and the complexity of these projects, is that the presence and quality of an intermediary organization had a very strong influence on the degree and ways in which the PES programs interacted with local-level dynamics. As a director of an NGO that had served as the intermediary for a number of CONAFOR PES projects put it,

> "The concept that some people have is that the farmers know exactly what environmental services they have and they look for a technical service provider to help them sell them. The truth is that it's the technical service providers that know about the environmental services projects…They require a really heavy investment of time, not like the other projects, which just require a couple of studies." (Interview June 29, 2006)

The complexity of both the application and implementation of these projects, as mentioned above, the lack of direct communication between the participants and CONAFOR, and the lack enforcement of accountability for service providers have all led to serious cases of corruption or very poor quality of service provision. However, in the cases in which the intermediary organization had worked in the community long term, had established relationships with community members, and were working with the community to implement multiple, diverse projects, there presence in the implementation of the PES projects could have strong influence on ensuring that the funds were used in ways that distributed benefits equitably and the community members were trained in the skills and organization necessary to improve ecosystem management.

Conclusions

While it may be that, as discussed in Chapter 1, that the lack of market development can be attributed to the fact that "ecosystem services" are an extraordinarily fictitious commodity, it was the inability of the federal state to intervene in actual practice in rural areas that allowed participants to re-imagine the CONAFOR PES program as a subsidy in recognition of their stewardship. This is not to deny that the process of conceptual hybridization was mutually constituted. Rural program participants and their representatives did, in some cases and to some extent, also adopt the concept of ecosystem services as commodities with externally assigned

values to be bought and sold in the marketplace. But since the late 1980s the federal state's ability to intervene in rural areas was deliberately dismantled during multiple rounds of structural adjustments (Fox 1995; Collier and Dollar 2002). The imposition of the neoliberal narrative of market-efficient conservation would have required blocs of actors representing the "multiple axes through which hegemonic struggles are waged" (Ekers et al, 2009, p 289). The market-efficiency discourse did not take hold in hearts and minds of the program participants because it occurred only in the realm of the "extraordinary" - in academic literature, in policy think tanks and in the reports of multilateral lending institutions. But it was also the everyday practices of these *campesinos*, their continued investment in actively managing their own ecosystems, which led to the hybridization of the *means* of the Mexican national PES program. The counter discourse of revaluing the rural prevailed precisely because it was imagined not only in newspaper editorials and rousing speeches at rallies, but because it was reproduced in the everyday practices of the rural program participants. As Dove (2004) says in relation to agricultural shade management in rural Pakistan, "The most quotidian resource practices may have profound political implications (p. 218).

The impacts, or lack their of, of the Mexican national PES programs on the rural communities where they were implemented presents a clear illustration of neoliberalism's double bind with regards to market-based environmental measures – the "creation" of markets for the products of conservation, whether they be for capture of carbon in biomass or the pollination services of wild bees, most often requires long term, concerted effort without hope of short term or even eventual profit, especially when these "products" are currently being provided for free. States, whose at least nominal mandate is to increase the greater public good, are in the optimal position to carry out this task, more so than markets themselves since, they require direct and short-term returns on investment, or civil society, whose scope and scale of influence is most often beyond that necessary to impact the large scale structural changes (e.g. placing a national cap on carbon emissions or instituting an at-the-gas-station, per gallon tax on petroleum) required to influence the formation of new markets. But in the case of Mexico, and of most of the world, over twenty years of neoliberal "adjustments" to the size and scope of the state through decentralization, devolution and privatization, have severely limited to ability of the federal government to intervene.

Chapter 7

Conclusions

The ultimate form and meaning of the Mexican federal PES programs have been substantially hybridized throughout the process of implementation. The many actors involved in designing and shaping these programs promoted their own ideals of what PES can accomplish and the mechanisms for doing so. Neoliberal-minded policy makers from the World Bank and the original PSA-H design team had applied a straightforward economic logic: if you pay resource degraders slightly more than the opportunity cost of conversion to other uses, they will leave the forest alone. According to this logic, these land managers will then quantify the amounts and types of ecosystem services produced and create markets to which they will be sold. This notion of PES, which vastly oversimplifies the complexity of human political, ecological and even economic relationships, was very thoroughly hybridized, first through federal politics, the institutional context of the ecosystem services to be commodified and the discursive practices and active contestations of rural social movements, and, later, through the grounded practices of rural participants.

As Mansfield (2004 p. 569) discussed, neoliberalism's manifestations are inevitably, "historically and geographically specific to a given situation." Mexico received more structural and sectoral adjustment loans from the World Bank, thirteen between 1980-1991, than any other country (Barry 1995). With NAFTA following close behind to rid the country of the last vestiges of the developmentalist state, Mexico is now known as a truly open market, one of the most promising of the "new globalizers" (Collier and Dollar 2002, 35). It is perhaps one of the last countries in the global south where one would expect to find significant institutional barriers to the commodification of ecosystem services. And yet, as a number of previous scholars of market-based conservation have observed, the pre-existing institutional and cultural context of the socio-nature being commodified, whether it be wetlands, fisheries, or water supplies, can present significant obstacles to its complete capitalization (Mansfield 2004, Bakker 2005; Robertson 2000; 2004).

The still strong Mexican state and civil institutions resisted the "market-efficiency" conception of the original designers of the PES programs, significantly diluting attempts to introduce market-like mechanisms into the policy design or to devolve administration away from the federal state. Within the neoliberal ethos, there exists an active role for state intervention in the formation of new markets (Mansfield 2004; Bakker 2005; Harvey 2005). However, given the strong and consistent market-based rhetoric surrounding PES, it is worth noting that the great majority of PES initiatives around the globe maintain a strong, if not exclusive, degree of intervention and management by the state and that, in most cases, markets have failed to materialize. This is certainly the case in Mexico, where seven years after it was first implemented, the federal state remains the almost exclusive 'buyer' of the ecosystem services produced through the national program. In the end, the specific conformation of the national PES policies had more to do with popular perceptions of the relationship between forests and water provision, the political strength of the coffee grower unions, and/or the desire

of Mexican pharmaceutical companies to improve their eco-image than it did with increasing the efficiency of the market into environmental conservation.

However, we also observed the way in which a national level rural social movement appropriated and altered the very conceptual basis of PES to better fit their, and the majority of the rural program participants', idea of 'nature'. They positioned 'traditional rural stewards' as the suppliers of ecosystem services, effectively valuing the *labor* required to produce healthy ecosystems as opposed to disarticulated ecosystem services themselves. And, as was discussed in Chapter 1, Polanyi's theory of fictitious commodities posits that labor, "because it cannot be detached from the rest of life, be stored or mobilized," and, "nature, which is not produced by man," can never truly be disembedded from society and social systems to fully integrate with the "market" (Polanyi 1944, p. 75). As Ekers et al. (2009) say of Gramsci's explanation of the formation of hegemonies,

> "The point simply is that both movements supporting existing hegemonic blocs and aspiring hegemons can never settle on this or that discreet part of the environment, but rather must tackle the 'bundle' of social relations articulated in what is known to be 'nature'. As nature is materially and ideologically enrolled and produced in hegemonic projects this occurs in both the domain of the extraordinary and that of everyday life and work."

I find this to be an accurate description of both the process of building the hegemonic narrative of market-efficient conservation as it was of the counter-hegemonic narrative of revaluing the rural produced by the rural social movements. The construction of both of these narratives required blocs of actors representing the "multiple axes through which hegemonic struggles are waged" (p. 289). There were however a few interesting twists to this particular story. First, that the market-efficiency discourse did not take hold and bloom because it occurred only in the realm of the "extraordinary" - in academic literature, in policy think tanks and in the reports of multilateral lending institutions. The counter discourse of revaluing the rural prevailed precisely because it was imagined not only in newspaper editorials and rousing speeches at rallies, but because it was reproduced in the everyday practices of the rural program participants.

It is also important to examine the specific means through which the process of hybridization occurred. As other scholars have observed in studies of social movements in a variety of contexts, in the case of Mexico the continued dominance of the state in creating, regulating and financing PES schemes also presents opportunities for challenging the basic neoclassical premises on which the concept of PES is built. That the state, as mentioned above and examined more thoroughly in Chapters 3 and 4, plays such particularly crucial role in the national PES program in Mexico can, "Suggest possibilities for challenging neoliberal policies, practices and institutions, even without depending on civil society-cum-NGOs." (Peluso 2007, p. 92). For as Peluso et al. (2008) found in Indonesia, even in a politics dominated by neoliberal thinkers and an economy ruled by policy intended to free the markets, the state still have a crucial role to play in mediating between social movements and powerful actors at multiple scales. In Chapter 5, I demonstrate the ways in which the federal state was the "fulcrum point" (Peluso 2007, p. 92) that allowed rural social movements to leverage a very

distinct ideal of PES, as a societal revaluing of the rural and introduce discourse and policy practice that countered the market emphasis of the neoliberal version.

A more foundational explanation for the failure of true market formation for ecosystem services in Mexico rests with Polanyi. Whether or not PES qualifies as commoditization of nature under the logic of neoclassical economics, according to Polanyi, ecosystem services are what Marx terms as "external nature," and as such can only ever be 'fictitious commodities'. As the sociologist and Marxist economist, Martin O'Connor (1997) explains:

> "With a tortured and crackpot ingenuity neoclassical economists today try to attach prices to clean air, attractive views, and other environmental amenities; wilderness areas; and even rainforests. Yet, however much capital is applied to the soil, water tables, coastlines, and mineral deposits, they are produced by God, who did not make them for sale on the world market." (p. 147)

It is interesting to compare the content and sentiment of the quotation above with that of a leader of an indigenous community in Chiapas, Mexico who, when participating in a workshop on PES, was asked what he thought of the concept.

> "When you speak of 'payments' it leads us to associate it with money and to think that we are 'selling" that which nature produces. We cannot take ownership of the work of nature, but we can demand recognition for the work that we do that helps nature and that benefits other people. That way it is not just a payment, but a remuneration, a recognition and a rescuing of the indigenous practice of reciprocity." (Burstein 2003, p. 5)

Seven years after it was first implemented, the Mexican national PES programs have been converted into a rural subsidy that has not, warnings to the contrary, substantially altered socio-natures in rural Mexico. However, attempts to create truly tradable commodities of Mexico's ecosystem services still persist. President Felipe Calderón's financial support for the program weakened in 2008 and 2009, leaving CONAFOR more open to the pressures from the World Bank to push for the formation of independent markets for ecosystem services and to introduce measures to make the program itself more "market-like". The Calderón administration has also begun to position Mexico as a "developing country leader" in reduction of emissions and a prime seller of forest-based carbon offset credits to industrialized nations. In 2008, he pushed for a World Bank grant to CONAFOR a grant through the Forest Carbon Partnership Facility to put Mexico forth as leader in the market for carbon offsets produced through Reduced Emissions from Deforestation and Degradation (REDD). The goal of the World Bank program is to have developing countries sell, "All rights, titles, and interests attached to a ton of CO_2e" (Pagiola 2009, p 29) sequestered through avoided deforestation. If real international markets for carbon develop, it is likely that the buyers will demand a greater level of "accountability", which in turn would lead to more intrusive levels of monitoring and enforcement. As mentioned before, that ecosystem services are produced in situ indicates that increased monitoring could very literally lead to these rural communities being tied more intimately to the global market for ecosystem services.

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Appendix 1

List of the primary institutional actors involved in the PSA-H and PSA-CABSA programs.

Acronym	Full Name	Relationship to PES Programs
IADB	Inter-American Development Bank	Participated in working group that developed the Strategic Forestry Plan 2025 that first mentions a national-scale PES program as a concrete proposal.
ANEC	*Asociación Nacional de Empresas Comercializadoras de Productos del Campo* (National Marketing Association of Rural Production)	Independent, non-corporatist association of rural producers
CEPCO	*Coordinadora Estatal de Productores de Café de Oaxaca* (State Coordinating Committee of Organic Coffee Producers of Oaxaca)	Coffee producer association and MECNAM representative on PSA-CABSA oversight committee.
CNA	*Comisión Nacional de Agua* (National Water Commission)	Funding for the PSA-H program originates from federal water tax controlled by this agency. Had representative on PSA-H and PSA-CABSA oversight committees.
CNOC	*Coordinadora Nacional de Organizaciones Cafetaleras* (National Coordinating Committee of Coffee Producer Organizations)	Coffee producer association and MECNAM representative on PSA-CABSA oversight committee.
CONAFOR	*Comisión Nacional Forestal* (National Forestry Commission)	Mexican federal Forestry Department implementing the PES programs.
EZLN	*Ejército Zapatista de Liberación Nacional* (Zapatista Army of National Liberation)	Zaptista indigenous movement from the southern state of Chiapas who served as inspiration for the later MECNAM movement.
GEF	Global Environment Facility	Provided US$15 million grant to support the formation of the *Fondo Patrimonial de Biodiversidad* (Biodiversity Heritage Fund).
INE	*Instituto Nacional de Ecología* (National Ecology Institute)	Mexican federal environmental policy and research institute. Responsible for preliminary design of the PSA-H program. Representatives sat on the PSA-H and PSA-CABSA oversight committees through 2006.
MECNAM	*¡Movimiento el Campo no Aguanta Más!* (The Countryside Can't Take it Any More!)	National coalition of rural social movements and organizations. Protests resulted in the formation of the PSA-CABSA program and representatives sat on oversight committee 2004-2006.

NAFTA	North American Free Trade Agreement	Free trade agreement between Mexico, the United States and Canada. Ratified by all three countries in 1993.
PROCAMPO	*Programa de Apoyos Directos al Campo* (Program of Direct Rural Aid)	Federal program that replaces production subsidies with per-hectare payments to grain producers.
PROCEDE	*Programa de Certificación de Derechos Ejidales y Titulación de Solares Urbanos* (Program of Certification of *Ejido* Rights and Titling of Urban Residential Plots)	Federal program to map the external and internal boundaries of *núcleos agrarios* as a step toward privatization and to resolve land disputes.
PROGRESA	*Programa de Educación, Salud y Alimentación* (Program of Education, Health and Nutrition)	Federal program that pays mothers to ensure school attendance and child health check-ups.
Red-MOCAF	*Red Mexicana de Organizaciones Regionales Campesinas Autónomas* (Mexican Network of Peasant Forestry Organizations)	Community forestry association and MECNAM representative on PSA-CABSA oversight committee.
SAO	*Servicios Ambientales de Oaxaca* (Environmental Services of Oaxaca)	Association of producer groups and civil society organizations implementing PES programs in Oaxaca and MECNAM representative on PSA-CABSA oversight committee.
SEMARNAT	*Secretaría del Medio Ambiente y Recursos Naturales* (Ministry of the Environment and Natural Resources)	CONAFOR and INE are both under this Ministry's jurisdiction.
SHCP	*Secretaría de Hacienda y Crédito Púbilco* (Ministry of Finanace)	Responsible for designating the financing of the PES programs.
UNOFOC	Unión Nacional de Organizaciones de Forestería Comunal (National Union of Community Forestry Organizations)	Community forestry association and MECAM representative on PSA-CABSA oversight committee.
UNORCA	*Unión Nacional de Organizaciones Regionales Campesinas Autónomas* (National Union of Autonomous Regional Peasant Organizations)	National network representing *campesino* and indigenous organizations and MECNAM representative on PSA-CABSA oversight committee.
WB	World Bank	Provided funding for the initial research and pilot program that initiated the national PES programs in Mexico. Provided an additional US$45 million loan in 2006 to expand the program and support the development of true markets for ecosystem services

Appendix 2

Copy of the master guide used in community-level semi-structured interviews (translated from the Spanish).

Community-Level Questions

Date:

Name:

Municipality:

District:

What is the nearest city and how long does it take to get there?

Name of the Commissioner of Common Lands:

Name and d of the interviewees:

Land tenure:

Who has to the following types of land, for how long and who makes the decisions concerning these issues?

Agricultural land:

Forested areas:

Individual family homes and yards:

Governance:

What types of committees and governing councils do you have in this community? How long do people hold offices in each?

Who is responsible for deciding how communal lands are used and who may have access to them?

Land Use History:

How has the way the community's land is used changed in the last 25 years (since 1980)?

How many hectares of land are designated for the following land uses?
Urban zones:
Forest and other uncultivated lands:
Agricultural cultivation (shifting and permanent):
Grazing:

What do people in the community cultivate? Of these products, which are used primarily for subsistence and which for sale?

Forest Management and Use Practices:

What type of forestry management activities does the community complete (e.g. weeding, thinning, trimming of branches, culling of diseased trees, fire break construction, monitoring against illegal logging or hunting)?

Who in the community completes each of these activities and do they do them as part of the duties of their community office, for their obligatory communal service or are they paid?

Which of these activities are most costly, either in labor or in money? Why?

How did you learn to do these activities?

How do people in this community use the forest (e.g. firewood, timber for construction, edible plants, medicinal plants, hunting, pasturage, religious ceremonies)? Are they required to get permission for any of these activities? If so, which ones and from whom?

Have the ways in which the people of this community use the forest and forested land changed much in the last 25 years? If so, how and why?

How has the way in which community members use the forest changed since the community enrolled in the PES program?

Are there problems of illegal logging on the community's forested land? If so, by whom?

General:

What are the five most important sources of income for the people of this community?

What are the religious sects that people of this community belong to? Is there any conflict between these sects? If so, what impact does this have within the community?

Do many people emigrate from this community? If so, where do they go and how long do they normally stay?

What would you say are the five most serious problems your community currently faces?

Payments for Ecosystem Services Program:

How many hectares total of community land is enrolled in the PES program?

How did you chose what land to enter into the PES program? What was this land being used for prior to entering the PES program?

What types of activities is the community completing as part of the PES program?

How did you first hear of the PES program? What did you think of the idea when it was first presented to you?

Did people in the community have any doubts about the decision to enter the PES program? If so, what were they?

After the PES program is finished, have you and the other community leaders thought of finding other markets to whom you might sell your ecosystem services?

What types of workshops, presentations or demonstration sessions have you received concerning improved forest management and/or payment for ecosystem services since the PES program began? Which organizations led these activities?

What other organizations besides CONAFOR have worked with this community? What types of support have they provided?