

**Community Mobilization and Ecological Outcomes in Peri-Urban Mexico City,
1989-1992**

By

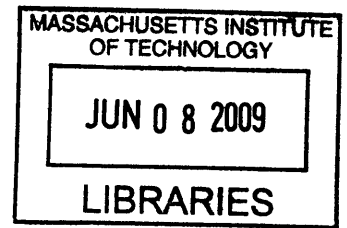
Nicholas DuBroff

B.A. Geography and Spanish
Middlebury College, Middlebury, VT 2005

Submitted to the Department of Urban Studies and Planning in partial fulfillment of
the requirements for the degree of

**MASTER IN CITY PLANNING
AT THE
MASSACHUSETTS INSTITUTE OF TECHNOLOGY**

June 2009



ARCHIVES

© Nicholas DuBroff. All Rights Reserved.

The author hereby grants permission to MIT to reproduce and to distribute publicly
paper and electronic copies of the thesis document in whole or in part.

Author: _____

1
/ ~ J

Department of Urban Studies and Planning
(May 21st, 2009)

Certified By: _____

Diane E. Davis
Professor of Political Sociology
Thesis Supervisor

Accepted By: _____

/ //

Joseph Ferreira
Chair, MCP Committee
Department of Urban Studies and Planning

Abstract

Beginning in the 1930s and continuing through the 1970s, Mexico City developed swiftly, thus engendering rapid urbanization and a demographic boom. The majority of population growth occurred on peri-urban agricultural and ecological conservation lands and manifested as irregular settlements: illegal and structurally precarious urban developments without well-defined property rights. Today, almost a third of the metropolitan area's population—5.1 million people—continues to live in irregular settlements. Because irregular settlements are not legally recognized they do not receive urban services such as sewerage, and are forced to release their effluent haphazardly, often contaminating the groundwater that supplies 57% of the city's water. And this is where the problems begin.

The continuous and illegal urbanization of peri-urban ecological conservation lands has bedeviled planners in Mexico City—in an atmosphere of opaque government, political clientelism, and unique ecological conditions in the Basin of Mexico, how can urbanization be controlled and how can environmental planning be implemented? This thesis examines the processes and conditions that enable environmental planning in rapidly urbanizing cities by studying the Project for the Ecological Rescue of Xochimilco (PREX), a government environmental remediation project in southern Mexico City in 1989 that was intended to halt widespread environmental degradation.

Based on the PREX case, this thesis has two key findings: First, environmental planning in urbanizing locales requires a regional approach that incorporates the overarching political and ecological factors that coalesce in irregular settlements. Although environmental degradation is experienced locally, it is connected to environmental degradation of the watershed and the metropolis as a whole. Without considering the metropolitan region, narrowly focused environmental planning projects will only provide superficial remediation. Second, perfunctory citizen participation in environmental planning is ineffective and public participation for the sake of being democratic is Sisyphean. As such, government planners must work to incorporate purposeful citizen participation into conclusive environmental outcomes.

Acknowledgements

- Thank you to mom, dad, and Jay for your love and support.
- Thanks to Diane Davis, my adviser, for helping me get to Mexico City (multiple times) so that I could undertake the fieldwork for this thesis, pushing me to ask (and answer) better research questions in my work, and for supporting my return to Mexico City this upcoming year to continue studying urbanization.
- Thanks to Annette Kim, my reader, who provided great advice on my drafts and also introduced me to the role of property rights in urban development.
- Thanks to all the ejidatarios, researchers, organizers, government officials, and chinamperos who took the time to help me with this thesis. Your interviews provided the foundation of my research.
- Thanks to MISTI-Mexico and Griselda Gomez for funding my fieldwork, and to Victor Hugo Hoffman Aguirre for helping me make contacts in Mexico City.
- And finally, thanks to all my friends at DUSP for the support and encouragement!

Table of Contents

ABSTRACT	3
ACKNOWLEDGEMENTS	4
TERMS, ABBREVIATIONS, AND ACRONYMS	7
CHAPTER 1: INTRODUCTION	8
1.1 ENVIRONMENTAL PLANNING IN URBANIZING AREAS	8
1.2 THE LIMITED SUCCESS OF THE PROJECT FOR THE ECOLOGICAL RESCUE OF XOCHIMILCO	12
1.3 THEORIES ON CITIZEN PARTICIPATION IN URBAN PLANNING PROJECTS	16
1.4 ORGANIZATION OF THE THESIS	18
1.5 METHODS	19
CHAPTER 2: DEVELOPMENT, URBANIZATION, AND POLITICS	22
2.1 CHAPTER OVERVIEW	22
2.2 WHERE URBANIZATION HAPPENS: EJIDOS AND IRREGULAR SETTLEMENTS	23
EJIDO IDENTITY	23
THE URBANIZATION OF THE EJIDO	25
ECONOMIC DEVELOPMENT AND THE EXPANSION OF IRREGULAR SETTLEMENTS	26
2.3 THE PRI'S CONTROL OF THE FEDERAL DISTRICT: 1930 - 1980	32
2.4 THE PRI'S WANING POWER: CITIZEN DISCONTENT IN THE 1980S	35
2.5 MEXICO CITY'S GEOPOLITICAL JIGSAW: COMPETING AND CONFLICTING INSTITUTIONS	39
2.6 PROPERTY RIGHTS AND PREX	44
2.7 SUMMARY	47
CHAPTER 3: URBANIZATION IN XOCHIMILCO	49
3.1 CHAPTER OVERVIEW	49
3.2 THE ENVIRONMENTAL IMPACTS OF URBANIZATION IN XOCHIMILCO	49
3.3 OVEREXPLOITATION AND CONTAMINATION OF WATER RESOURCES	51
3.4 EXPANSION OF IRREGULAR SETTLEMENTS ON ECOLOGICAL AND AGRICULTURAL LAND	53
3.5 ENVIRONMENTAL DEGRADATION AS THE BASIS FOR CITIZEN MOBILIZATION	55
CHAPTER 4: THE CASE STUDY	58
4.1 CHAPTER OVERVIEW	58
4.2 THE POLITICS OF THE PREX	59
4.3 THE ECOLOGICAL RESCUE PLAN FOR XOCHIMILCO	60
4.4 THE ALTERNATIVE EJIDO PLAN FOR THE ECOLOGICAL RESCUE OF XOCHIMILCO	64
4.5 THE BEGINNING OF CITIZEN MOBILIZATION	69
PART II: EXPLAINING THE PROCESSES OF PARTICIPATION	71
4.6 CONNECTIONS TO POLITICAL AND SOCIAL INSTITUTIONS	71

4.7 COMPETING EJIDO GROUPS: RESISTANCE DISINTEGRATES	75
4.8 MOBILIZING AROUND ECOLOGICAL DEGRADATION IN SAN GREGORIO	78
4.9 SUMMARY OF CITIZEN RESISTANCE	81
CHAPTER 5: THE AFTERMATH	83
5.1 CHAPTER OVERVIEW	83
5.2 THE VENEER OF A SUCCESSFUL PROJECT	83
5.3 CONNECTING CITIZEN PARTICIPATION TO ECOLOGICAL OUTCOMES	88
5.4 REGIONAL INSTITUTIONS AND NEW POLITICAL CHANNELS	91
5.5 SUMMARY	93
CHAPTER 6: CONCLUSION	95
ENVIRONMENTAL PLANNING AND INTERVENTIONS IN URBANIZING AREAS	97
REMAINING QUESTIONS	98
BIBLIOGRAPHY	100

Terms, Abbreviations, and Acronyms

Chinampa: Pre-Columbian agricultural land use and irrigation system developed in Xochimilco, in the southern part of present day Mexico City

Chinampero: Chinampa landowner and farmworker

Colonia: An irregular settlement

Colono: Inhabitant of an irregular settlement

CNC: Confederación Nacional de Campesinos, National Farmworkers Confederation

CNOP: Confederación Nacional de Organizaciones Populares, National Confederation of Popular Organizations

CoRett: Comisión para la Regularización de la tenencia de la tierra, Commission for the Regularization of land tenancy

CTM: Confederación de Trabajadores, Confederation of Laborers

DDF: Departamento del Distrito Federal, Department of the Federal District

DF: Distrito Federal, Federal District (Mexico City)

DGCOH: Dirección General de Construcción y Operación Hidraulica, Directorate General of Hydraulic Constructions and Operations (within the DDF)

Ejido: Communally owned, usufruct agricultural land enshrined in article 27 of the 1917 constitution

Ejidatario: Ejido landowner

FIDEURBE: Fideicomiso de Interés Social para el Desarrollo Urbano de la Ciudad de Mexico, Trust for Social Interests and the Urban Development of Mexico City

PAN: Partido de Acción Nacional, National Action Party

PND: Plan Nacional de Desarrollo, National Development Plan

PPS: Partido Popular Socialista, Popular Socialist Party

PRD: Partido Revolucionario Democrático, Revolutionary Democratic Party

PREX: Proyecto de Rescate Ecológico de Xochimilco, Project for the Ecological Rescue of Xochimilco

PRI: Partido Revolucionario Institucional, Revolutionary Institutional Party

SAHOP: Secretaria de Asentamientos Humanos y Obras Publicas, Secretariat of Human Settlements and Public Works

SARH: Secretaria de Agricultura y Recursos Hidraulicos, Secretariat of Agriculture and Hydrological Resources

SEDUE: Secretaria de Desarrollo Urbano y Ecología, Secretariat of Urban Development and Ecology

SRA: Secretaria de la Reforma Agraria, Secretariat of the Agrarian Reform

Chapter 1: Introduction

1.1 Environmental planning in urbanizing areas

Beginning in the 1930s and continuing through the 1970s, Mexico City developed swiftly through Import Substitution Industrialization, thus engendering rapid urbanization and a demographic boom. The majority of population growth occurred on peri-urban agricultural and ecological conservation lands and manifested as irregular settlements: illegal and structurally precarious urban developments without well-defined property rights. In 2001 an estimated 5.1 million people in Mexico City—about one third of the metropolitan population—still live in irregular settlements. Although illegal, this type of urbanization has provided affordable housing for the influx of rural laborers in search of employment. Nonetheless, because irregular settlements are not legally recognized they do not receive urban services such as sewerage, and are forced to release their effluent haphazardly, often contaminating the groundwater that supplies 57% of Mexico City's water (Aguilar, 2008). And this is where the problems begin.

The continuous and illegal urbanization of peri-urban ecological conservation lands has bedeviled planners, academics, and politicians in Mexico City—in an atmosphere of opaque government, political clientelism, and unique ecological conditions in the Basin of Mexico, how can urbanization be controlled and how can environmental planning be implemented? This thesis examines the processes and conditions that enable environmental planning in rapidly urbanizing

cities. Specifically, I study the Project for the Ecological Rescue of Xochimilco (PREX), a government environmental remediation project in southern Mexico City in 1989 that was intended to halt widespread environmental degradation. Despite the visible need for environmental remediation in the area, citizen resistance to the project circumscribed its implementation and the project did not completely mitigate environmental degradation. This outcome reveals the difficulty of environmental planning in urbanizing areas, where environmental engineering combined with perfunctory public participation—evidenced in PREX—simply does not deliver optimal outcomes. Indeed, urbanization is politically and ecologically complex and has far reaching impacts: urbanization remasters land uses, transforms the built environment, alters environmental conditions, and challenges extant forms of political representation. Planners must integrate these political and ecological factors into their planning efforts in order to achieve successful outcomes.

Through analysis of the 1989 PREX, this thesis uncovers two important considerations for environmental planning in urbanizing locales. First, decentralized government decision-making and citizen participation in localized planning projects—such as the PREX—do not address ecological degradation engendered by urbanization. Urbanization challenges the distinction between urban politics and ecological conservation because urbanization occurs on ecological lands. In this way, institutions that address urban development and ecology separately are unequipped to address the transformative nature of urbanization. To remedy this shortcoming, a regional approach is necessary in environmental planning in urbanizing areas.

This regional approach requires institutions capable of synthesizing politics, ecology, and citizen representation at the metropolitan scale. At the metropolitan scale, ecological factors such as water management and watershed boundaries can be managed, thus internalizing negative environmental externalities—such as water contamination in nearby areas—that narrowly focused remediation projects simply fail to address. By accounting for negative environmental externalities across a watershed, metropolitan-scale political institutions can deliver lasting environmental solutions that pertain to local stakeholder concerns. Finally, citizens affected by localized environmental degradation can most effectively participate in public decision-making when they integrate their concerns into a larger, metropolitan framework. Local environmental degradation is linked to metropolitan political and ecological forces, and as such, local environmental remediation requires institutions that encompass the metropolitan region.

The second finding in this thesis pertains to the environmental outcomes of citizen participation in environmental planning projects. Citizen participation in and of itself—local demands, mobilizations, and protests—is an ineffective means of engaging government agencies. Citizen participation in environmental planning projects simply for the sake of being democratic is an incredible onus. To be effective, citizen participation must be linked to clear objectives, and government planners must work to parlay this participation into conclusive environmental outcomes. The PREX illustrates this challenge: notable grassroots mobilization and resistance to PREX did not evolve into concrete environmental outcomes, and many

stakeholders continue to be affected by water contamination even after the Federal District government claimed that the project had been completed in 1993.

Current planning literature (Healey, 2003; Friedman 1987; Friedman 2003; Fainstein, 2000) advocates citizen participation and incorporation of local knowledge in public decision-making. But local knowledge and public consensus are often valued without question, and the PREX case reveals that local knowledge is multidimensional, heterogeneous, and not easily reduced to a single agenda and objective. Whereas this thesis does not refute the importance of public participation, it does question its relevance as a panacea for planning projects—perfunctory public participation does not lead to successful environmental outcomes. In this capacity, regional institutions capable of incorporating the intertwined political and ecological factors evident in urbanizing areas can serve to guide public participation in environmental projects, thereby delivering ecologically beneficial outcomes.

In the following sections I delve into the PREX case and the political circumstances that frame it. Nonetheless, the reader should keep in mind that urbanization challenges distinctions between urban areas and ecological conservation areas. In urbanizing areas urban land and ecological conservation land overlap, making environmental planning challenging and justifying the need for purposeful citizen participation through regional institutions that synthesize political and ecological factors at local to metropolitan scales.

1.2 The Limited success of the Project for the Ecological Rescue of Xochimilco

On September 27, 1989 planners from the government of Mexico City presented the Project for the Ecological Rescue of Xochimilco at the City of Mexico Museum in downtown Mexico City. Xochimilco, a southern borough in Mexico City, was the site of widespread—and by 1989, dire—environmental degradation and groundwater contamination stemming from unplanned urbanization of the surrounding agricultural area. In addition to borough representatives, bureaucrats, and planners, the presentation occasioned the attendance of both the city's mayor and the President of Mexico.

The plan (PREX) was part of the national government's 1989-1994 National Development Plan, and proposed constructing artificial lagoons to control surface water contamination, reordering land uses, and creating an ecological park that would be the centerpiece of a new urban-ecological tourist destination for Mexico City. The plan had nine primary objectives:

- Stop urban growth in the low-lying chinampa¹ and swamp areas
- Induce recharge of the area's springs to conserve subsurface water resources
- Prevent greater land subsidence in the lacustrine area
- Construct regulation lagoons to minimize the risks of flooding
- Improve water quality in the canals and lagoons
- Promote intensive agricultural and horticultural production using new technologies and delivering high economic returns
- Rescue the archaeological richness of the Xochimilca people
- Open and guarantee the permanence of new green and recreational spaces for the city
- Improve the economic and social conditions of the inhabitants of Xochimilco, given the deterioration and loss of environmental balance in the area

¹ Chinampas are the unique agricultural lands of Xochimilco, discussed in detail in chapter 2

In addition to its environmental goals, the PREX came about at time of momentous political and economic change in Mexico: the dominant political party, the Partido Revolucionario Institucional (Revolutionary Institutional Party, PRI), was struggling to maintain its longstanding control of Mexico City and the nation despite waning popular support (Pezzoli, 2000; Davis, 2002). Simultaneously, in the late 1980s Mexico was shifting to an open market economy and beginning the negotiations that would ultimately lead to Mexico's membership in the North American Free Trade Agreement (NAFTA), signaling a connection to inflows of private capital and foreign investment. Given this upheaval, PREX was a bold environmental remediation and urban development project intended to counteract the PRI's decline, foster private sector participation in public works, and achieve conspicuous environmental improvements in Xochimilco through decisive technical interventions.

However, residents of Xochimilco protested the project because it required expropriation of their communal agricultural lands called ejidos. Although the PREX received presidential approval in 1989, citizen opposition persisted through 1992. From 1989 - 1992 multiple negotiations between the Mexico City government, known as the Department of the Federal District (DDF)², and citizen groups produced an alternative ecological rescue plan that incorporated local stakeholder suggestions.

To this end, the PREX was modified and implemented somewhat successfully: citizen groups engaged the DDF to propose project alternatives, and many of these concerns were incorporated into a revised plan. Nonetheless,

² Mexico City and the Federal District, or DF, are synonymous in this thesis.

pursuant to citizen opposition, the project diminished in scope and geographic extent. Although citizens were able to negotiate with the DDF, the modified PREX did not comprehensively remediate environmental degradation in the area. In fact, despite active citizen participation in PREX, citizens were not able to achieve their environmental goals, and ecological degradation and groundwater contamination persist today.

Whether in Mexico, the United States, or China, citizen opposition to government projects that expropriate land for an ostensibly public benefit is not unheralded. Nor is it unprecedented that these citizen protests evolve into the organization of citizen groups that seek to alter the outcome of the project, normally by engaging government agencies through a variety of informal and formal channels. Although the PREX case coincides with these patterns of resistance, mobilization, and engagement with the state, the outcome of citizen participation in PREX is puzzling: grassroots citizen mobilization and engagement with the DDF did not deliver improved ecological conditions in Xochimilco. This unanticipated outcome contrasts with planning literature (Fisher, 2003; Friedman 1987; Friedman 2003; Healey, 2003) that argues for consistent citizen participation in urban planning projects, which should deliver democratic and successfully implemented projects.

The PREX originally required expropriation of two ejidos—communally owned agricultural land—within the borough (delegacion) of Xochimilco: the ejido

of Xochimilco³ and the ejido of San Gregorio Atlapulco⁴. Although both ejidos were subject to the same government project, the citizens of the two ejidos engaged the DDF in two distinct ways. The citizens of the ejido of Xochimilco initially resisted the PREX, but the ejido was ultimately expropriated in its entirety. Contrarily, the citizens of the ejido of San Gregorio Atlapulco resisted the PREX—until 1992—through citizen opposition movements and ultimately by securing a federal court injunction. After 1992, the ejido of San Gregorio Atlapulco was converted into a Natural Protected Area (ANP), which is protected by federal law from urban development⁵. Although the ejido of Xochimilco witnessed a degree of environmental remediation, the former landowners had been entirely divested of their land through expropriation. What is more, the ejido San Gregorio Atlapulco remains contaminated despite its notable citizen mobilization and designation as an ANP.

In this thesis I ask why two ejidos within the same project engaged the DDF through two distinct processes of citizen participation. Given these distinct processes of political participation, I explain the contrasting environmental outcomes in the two ejidos. Based on my findings, this thesis demonstrates the need for regional institutions to govern the political and ecological changes wrought by urbanization, and the need for directed, purposeful citizen participation in

³ Somewhat confusingly, the delegacion of Xochimilco contains both the ejido of Xochimilco and the ejido of San Gregorio Atlapulco.

⁴ I use ejido of San Gregorio and ejido of San Gregorio Atlapulco interchangeably in this thesis.

⁵ Subsequently, the Secretariat of the Environment and Natural Resources (SEMARNAT)—the federal agency that manages ANPs—transferred administration of the area to the DDF.

environmental planning projects—not simply citizen participation for the sake of being democratic.

1.3 Theories on citizen participation in urban planning projects

To explain the outcomes of citizen participation I look at the spatial reorganization of the ejidos within the delegacion of Xochimilco. Attention to the forces that shape the built environment reveals the social conditions and conflicts that shape the urban form (Castells, 1983). This thesis illustrates how, despite citizen mobilization and social conflict in Xochimilco from 1989-1992, government actions dominated and transformed the ecological and political space in Xochimilco.

As Castells argues:

The city is a social product resulting from conflicting social interests and values. Because of the institutionalization of socially dominant interests, major innovations in the city's role, meaning, and structure tend to be the outcome of grassroots mobilizations and demands. When these mobilizations result in the transformation of the urban structure, we call them urban social movements. (Castells, 1983: 291)

Citizen opposition to PREX parallels many of Castells' observations on urban social movements. Nonetheless, grassroots citizen opposition to PREX did not deliver structural change; political structures remained intact and ecological degradation continued after 1992. The PREX case demonstrates that social conflict and grassroots mobilization alone do not deliver ecologically optimal outcomes. In this capacity, I rely on Fainstein's definition of social movements to categorize the mobilization, organization, and demands put forth by citizens opposed to PREX:

Social movements are collective social actors defined by both their (dis)organization and their aims...Their aims are always oppositional to

established power, but the specific content of their objectives and whether their stance is resistant or transformative, reactionary or progressive, may shift according to their context and internal development. (Fainstein and Hirst, 1994: 3)

This definition more accurately captures citizen resistance to PREX because of the multitude of actors within the ejido and the multitude of government actors involved in the project. Whereas Castells' "urban social movement" definition would frame citizen resistance to PREX as nothing more than an interest group, Fainstein's definition—somewhat broader but more useful in this context—reflects the process and development of citizen movements in the PREX case.

This focus on process vis-a-vis outcome touches on an "enduring tension" in planning theory between emphasis on the utility of public participation in urban planning—a reaction to positivist, top-down approaches—and emphasis on predetermined outcomes defined by experts, regardless of citizen input (Fainstein, 2000: 452). Although technocratic planning is largely outmoded, advocates of democratic participatory planning still acknowledge—albeit abstractly and incidentally—the relevance of a project's outcome (Healey, 2003). The findings from the PREX case, however, demonstrate the necessity to explicitly emphasize ecological outcomes in practice, thereby directing citizen participation towards a clear objective.

The limited success of noteworthy resistance, organization, and grassroots mobilization in the ejido of San Gregorio raises questions about participation in and of itself. As Fainstein observes, "...deliberations within civil society are not ipso facto morally superior to decisions taken by the state. Rather, 'it is the doubled-edged nature of the state, its ability to effect both regressive or progressive social change,

that must be stressed (Yiftachel 1998,400)” (Fainstein, 2000:469). To be effective, planners must work to connect citizen participation to environmental planning outcomes.

Although focused on a specific case, this thesis is not solely about Mexican politics, property types, and protest. Instead, by outlining the political environment of Mexico City in the late 1980s and then disaggregating political participation and the associated urban planning outcomes, I hope to provide a useful framework for environmental planning in dynamic, urbanizing areas.

1.4 Organization of the thesis

To explain how citizen groups engaged with government agencies and, in turn, the outcomes of these forms of participation, this thesis is divided into five chapters. In the latter portion of this chapter I outline the methodology I employed in this thesis.

Chapter 2 establishes the political context in Mexico, Mexico City, and Xochimilco preceding the 1989 PREX. I define and outline the importance of ejido lands in Mexico City’s urban growth and I discuss the predominant form of urban expansion that takes place on ejidos: informal housing known as irregular settlements. Subsequently, I present the ways in which urban expansion—especially urbanization of peri-urban ejidos—was a political strategy that engendered environmental degradation.

In chapter 3 I specify how the broad political backdrop of national and city politics in the twentieth century manifested in the landscape of Xochimilco, and

accordingly, informed and solidified citizen resistance to the PREX in the ejido of San Gregorio.

I present the case study of the PREX from 1989-1992 in chapter 4, with special emphasis on the factors that explain why ejidatarios in the ejido Xochimilco acquiesced to the PREX while ejidatarios in the ejido San Gregorio Atlapulco resisted the PREX.

In Chapter 5 I focus on the outcomes of the PREX after 1992. Most importantly, I explain the outcomes of PREX and I outline how citizen resistance can be parlayed into urban planning projects.

In chapter 6 I conclude and discuss how citizen resistance to PREX fits into larger social and political changes in Mexico City at the end of the twentieth century. Finally, I ask whether citizen resistance to PREX formed part of a larger urban social movement that produced changes to the political structure of Mexico City in the mid 1990s and into the present.

1.5 Methods

The qualitative empirical research presented in this thesis builds on fieldwork undertaken in Mexico City in October of 2007, and January, June, July and August of 2008. During my stay in Mexico City I conducted semi-structured interviews that lasted approximately an hour. Employing a snowball technique, in which I made additional contacts from acquaintances of interviewees, I was able to interview an array of stakeholders involved in PREX. These interviewees included: ejidatarios, community organizers, members of NGOs, government bureaucrats,

government researchers, academics who had researched the PREX, and researchers who had both studied and helped organize citizen groups.

I also incorporate archival research into this thesis. Archival research was undertaken at the Center for Information on Xochimilco (CIDEX), located at the Universidad Autonoma Metropolitana-Xochimilco. This archive contains all delegacion, DDF, and national government documents related to the PREX. Additionally, it is a comprehensive source of newspaper reporting from the period, very little of which has been digitized. I incorporate Mexico City's major newspapers and government documents, publications, and comunicués from 1989-1993 in this thesis in order to establish the chronology of the events and to corroborate and gauge the accuracy of statements made in interviews.

Here, the dependent variable of the analysis is the bifurcated outcome of PREX. Why did ejidatarios in the same government project mobilize and engage the DDF in two distinct ways? What were the consequences of these actions in terms of ecological outcomes? The two processes of political participation—taking into account the political, historical, and ecological context of Xochimilco—explain the bifurcated outcome. The processes of political participation, in turn, are explained by the political and ecological conditions present in either ejido.

Although I do not have a large dataset against which I can measure and compare my case study findings, the method I employ in this thesis still has several advantages. Namely, this thesis looks at local conditions and processes in the grassroots mobilization and in this way accounts for the historical patterns of citizen and state engagement as well as the disaggregate processes of participation

in PREX. This thesis also progresses chronologically in order to establish how ecological degradation and urbanization in Xochimilco throughout the twentieth century informed citizen resistance to PREX in 1989. By explaining both the process of citizen resistance and the outcome of citizen mobilization, I intend to outline strategies for environmental planning in rapidly urbanizing locales.

Chapter 2: Development, Urbanization and Politics

2.1 Chapter Overview

To understand why environmental remediation in Xochimilco was necessary in 1989, this chapter outlines the broad economic and political conditions in Mexico and Mexico City that engendered urbanization of peri-urban lands known as ejidos. Section 2.2 defines ejidos, addresses their unique historical legacy in Mexico, and clarifies the role of ejidos in the proliferation of irregular settlements in Mexico City. Additionally, I discuss the role of informal and formal property rights in ejido land management.

In the remainder of the chapter I focus on the overarching connection between Mexico City politics and urban growth. Paralleling the growth of the urban area, section 2.3 focuses on the PRI and the PRI's strategies for maintaining power in national and metropolitan politics leading up the late 1980s. Section 2.4 documents the PRI's waning power in the late 1980s, the rise of new social movements outside of the PRI's purview, and the creation of land regularization and titling programs in Mexico City. Section 2.5 explores the complexities and difficulties of implementing land titling on urban ejidos in Mexico City, thus foreshadowing the contentious expropriations proposed in PREX. Section 2.6 details the implicit role of private property rights in the PREX, and how these seemingly trivial changes in land ownership and title actually coincided with the PRI's economic agenda. Section 2.7

summarizes the chapter and connects metropolitan political agendas with the local ecological degradation that occurred in Xochimilco.

2.2 Where urbanization happens: ejidos and irregular settlements

Ejido identity

Ejidos are communally owned agricultural lands with usufruct property rights, and were created shortly after the Mexican Revolution as a land redistribution act. Ejidos are enshrined in article 27 of the 1917 Constitution, which stipulates their communal management, inalienable rights, and protection from urban development. However, because ejidos occupy almost all peri-urban lands around Mexico City, they have been the predominant site of urban growth (Cymet, 1992; Ward, 1990). What is more, many ejido boundaries coincide with agricultural lands that have been occupied since pre-Columbian times. Indeed, many ejidos embody an agrarian ethos and community-centered politics that contrast sharply with urbanization and urban politics.

Within the delegacion of Xochimilco, the ejidos of Xochimilco and San Gregorio Atlapulco both trace their history to pre-Columbian times, making the ejidos historically and archaeologically unique sites. In large part, their historical significance stems from the chinampa agricultural system developed along the marshy banks of the now desiccated Lake Xochimilco. Chinampas are a type of raised agricultural bed in which layers of branches are interlaced and separated by layers of soil. This elevated “mattress” rests above the surface water and generates astounding agricultural outputs—up to 4 bountiful harvests a year. Canals separate

these floating gardens and facilitate transport of agricultural produce. In 1987 the United Nations Educational, Scientific and Cultural Organization (UNESCO) declared the remaining chinampas within the delegacion of Xochimilco a, “universal historic and cultural patrimony.”

In modern day Xochimilco the ejido and the chinampa land uses sustain a common identity among ejidatarios and chinampa land owners, known as chinamperos. The ejidos and the agrarian land reforms that created them are a testament to the revolutionary ideals of Emiliano Zapata. As interviewees reminded me when I visited Xochimilco, the ejidatarios of San Gregorio Atlapulco are the original descendents of Zapata—not neo-zapatistas—and several original Zapatistas supposedly lived in the area. Moreover, historical land uses reified in the chinampas—and recognition by the UN—bolster the ejidatario identity and infuse it with a compelling indigenous legacy.

The ejidatario identity is further reflected in the social organization and political representation of ejidatarios in city politics. Constitutionally protected usufruct property rights ensure agrarian land uses, and administration of ejidos under the Secretariat of the Agrarian Reform (SRA), a federal agency, reinforced this agrarian character. Within the ejido, ejidatarios elect a representative commission called the Comisaria Ejidal, which manages the land and makes all decisions regarding land uses and permissible parceling of portions of the ejidos for individual ejidatarios’ homes. Ejidos contain communal areas and individual plots which are passed from parents to children. Although transfer of land titles can sometimes become mired in family disputes, the inheritance of property nonetheless

strengthens the familial and community ethos of the ejido. To this end, ejidos embody multiple historical, cultural, and political forces, and their importance in Mexico City's history encompasses the Mexican Revolution and present day urbanization. Indeed, ejidos gained widespread attention in the latter half of the twentieth century by virtue of their location. Ejidos are the peri-urban lands that engulf Mexico City, thus positioning ejido land and ejido politics in a geopolitically pivotal role in Mexico City's urban growth.

The urbanization of the ejido

Ejidos in Mexico City have been the predominant sites of legal and illegal urban growth throughout the twentieth century. Presently, ejidos comprise 114,000 hectares of peri-urban land within the Mexico City Metropolitan Area (<http://www.metropoli.org.mx>; Diaz, 2008). Because of their location around Mexico City, ejidos have been and will be central factors in Mexico City's urban growth. In fact, ejidos have been the site of both state sponsored industrialization and residential development for upper, middle, and lower income households since the 1940s.

Beginning in the 1940s and continuing through the 1970s, Mexico City politicians regularly expropriated and urbanized ejidos to appease middle class and upper class interest groups. Expropriations functioned as a state subsidy for private developers (Varley, 1985; Cymet, 1992). Luxury neighborhoods and private construction companies and industries were developed on expropriated ejidos in the 1940s and 1950s (Varley, 1985: 7). Although constitutionally protected, the

widespread development of ejidos reflects the triumph of private interests over ejidatarios' constitutional rights. As Varley observes:

It is well known that *ejido* lands in Mexico have been urbanized by informal means (Sudra, 1976, Conolly, 1982, Gilbert and Ward, 1984), but what is less well appreciated is that much informal development has taken place in the context of a set of formal, legal provisions for the alienation of ejido property (Varley, 1985: 2).

A regulatory and political framework that favored urban development and industrialization—whether through outright expropriation or tacit political permission—enabled development of Mexico City's ejidos. The overarching political strategies that enabled urbanization of the ejidos are most clearly evidenced in the expansion of irregular settlements on Mexico City's ejidos throughout the twentieth century.

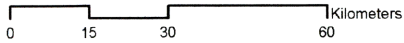
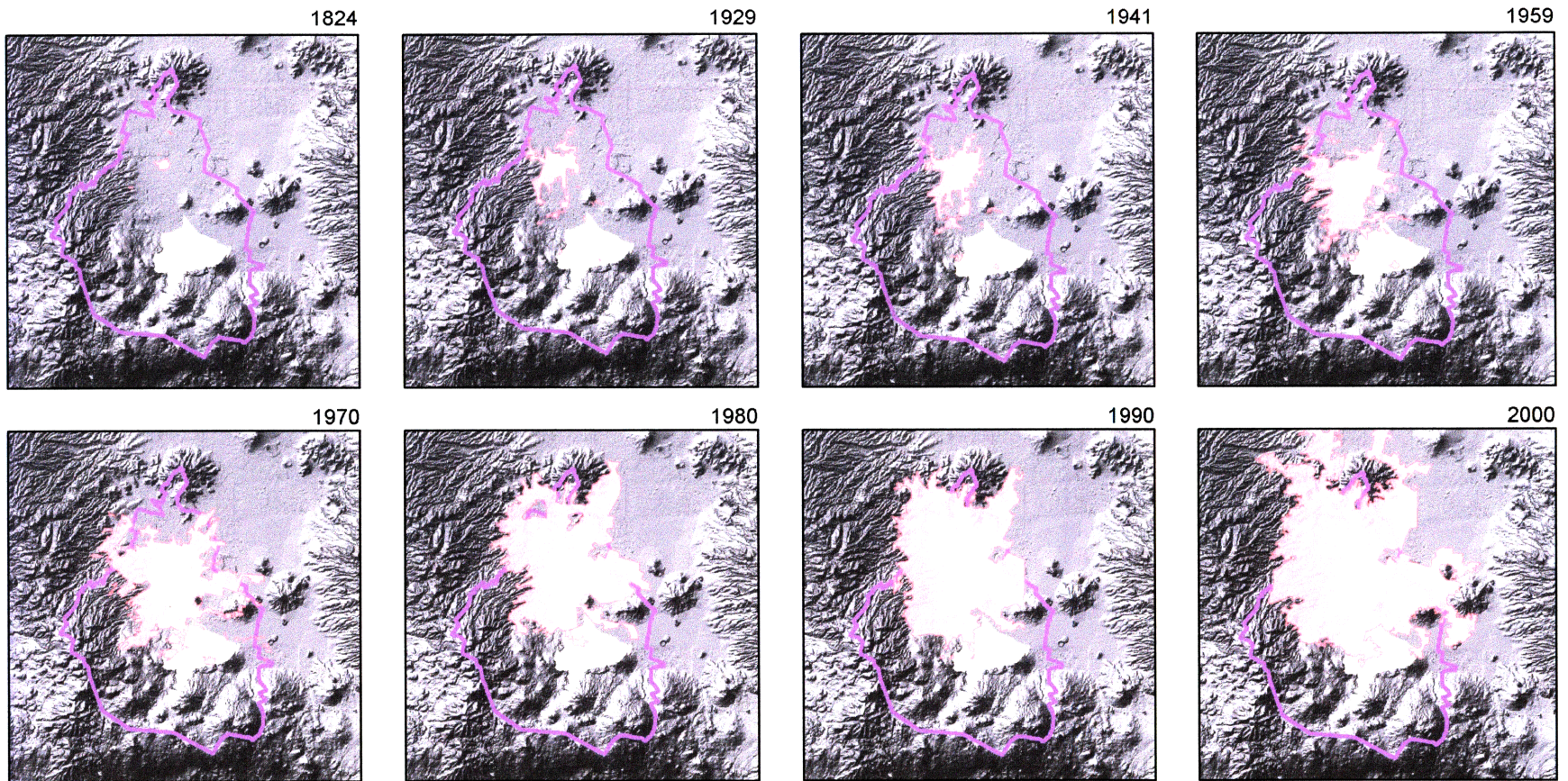
Economic development and the expansion of irregular settlements

Mexico City's economic development in the twentieth century engendered marked expansion of urban areas. From 1930 – 1970 Mexico City was the site of Import Substitution Industrialization (ISI) that shaped the economic and political geography of the metropolitan area. State investments focused heavily on industrial programs including electricity production, oil, petrochemicals and road networks. These localized investments and the attendant state institutions that monitored their implementation placed Mexico City at the forefront of the nation's economic development. Although the Federal District contained only one fifth of the nation's population in the 1940s, it accounted for 30.6% of the nation's GDP. In 1960 this percentage climbed to 36%, and subsequently leveled off by the late 1980s to

between 37-38% of the national GDP (Ward, 1990: 19). Within Mexico City the, “...city GDP has doubled in real terms every decade broadly paralleling national expansion. Inevitably this growth generated huge demand for labour...much of which was met, initially at least, through provincial-to-city migration” (Ward, 1990: 20). Rural migrants met the demand for labor in the service and manufacturing sector. But, the impact of mass relocation on Mexico City was not solely economic.

Demographic growth manifested haphazardly across Mexico City’s geopolitical terrain; downtown grew slowly while the outlying areas boomed (See Figure 1, Urban Growth in the Mexico City Metropolitan Area: 1824 - 2000).

URBAN GROWTH IN THE MEXICO CITY METROPOLITAN AREA: 1824 - 2000



Source: Instituto Nacional de Estadística y Geografía, 2000 Census
Projection: Universal Transverse Mercator Zone 14N
Datum: North American Datum 1927

Urban Footprint
Federal District
Xochimilco

This outward expansion reflected a demand for housing that outstripped the downtown supply. And, this demand for housing cut across socio-economic divides. Lower, middle, and higher income families catalyzed urban growth, and in the process urbanized peri-urban ejido lands with irregular settlements and exclusive residential developments. For instance, from 1950 to 1980, the population of Cuauhtemoc, a downtown delegacion, actually decreased by an average annual rate of 1.03%. In this same time period, however, Xochimilco's population grew at an average annual rate of 5.04% (Schteingart and Salazar, 2000: 69).

The urban poor gravitated to the ejidos where land was cheap and they were able to erect self-built housing known as "irregular settlements." Given a political framework that consistently permitted the urbanization of ejidos, it is no surprise that 90% of all irregular settlements existed on ejido land (Ward, 1990; Cymet, 1992), and a considerable percentage of the metropolitan population lived in irregular settlements. From 1950-1960 an estimated 60% of Mexico City's population lived in irregular settlements (Ward, 1990: 47), and in 1980 an estimated 40% of Mexico City's population still inhabited irregular settlements (Oberai, 1993).

Irregular settlements are neighborhoods composed of precarious residential structures built without legal land title or urban services. Over the course of ten to fifteen years these neighborhoods are recognized by local politicians and incorporated into the urban area (Aguilar, 2008). During this interval residents lack sewerage and sanitation and are often forced to discharge effluent haphazardly, thereby contaminating nearby water sources. Once they are recognized as an urban

development, residents receive land tenure, roads, and urban services. Most irregular settlements follow a trajectory in which the housing types progress from precarious built structures to multi-story homes, and these improvements parallel political developments within the irregular settlements and the delegacion.

The settlers (colonos) organize neighborhood groups in order to resist potential government eviction—technically, they are illegally occupying ejido land—and to demand urban services from delegacion offices. Formation of these neighborhood organizations marks the beginning of engagement with delegacion and DF government agencies and integration into delegacion politics. In fact, delegacion politicians regularly and tacitly condoned the expansion of irregular settlements in exchange for votes throughout the twentieth century (Cymet, 1992: 44).

Beginning in the 1940s, the rapid urbanization of ejido land created new political territory and opportunities to establish new electoral bases. Irregular settlements represented an ideal political base—the influx of poor migrants in search of affordable housing dovetailed with the vertical orientation of many metropolitan and national political structures (Ward, 1990). Settlers traded votes for permission to build homes—albeit illegally—and this corporatist strategy persisted throughout the land titling process.

As settlers sought land tenure, they were, counter intuitively, incorporated into the politicized atmosphere of delegacion-level politics. Urban services such as electricity and water required additional political patronage. Moreover, settlers' overriding objective was to achieve land regularization, which conferred security

and official land title (Varley, 1993: 252). Land tenure, in turn, required additional political patronage. When aggregated across Mexico City's periphery, irregular settlements remade the political geography of the city and transformed the cultural landscapes of peri-urban ejidos. As one academic I interviewed argued: why would you settle for a couple of votes per hectare when you could urbanize the area and get ten thousand?

In practice, ejidatarios normally divide and sell land to settlers with the help of promotores or fraccionadores: illegal developers who facilitate the sale of ejidos by parceling land and paying-off delegados. Although these agents are acting illegally, fraccionadores rely on the tacit support of delegados and delegacion bureaucrats—fraccionadores connect ejidatarios and settlers to political institutions. Indeed, it is only under the aegis of local politicians that irregular settlements expanded so dramatically, especially during election periods (Legoretta, 1994).

Because urbanization of ejido land is fundamentally a political strategy, the environmental degradation stemming from irregular settlements is not unavoidable, but is instead an unforeseen—or unimportant—external cost. As such, the spread of irregular settlements in peri-urban delegaciones like Xochimilco appears to be ejido and chinampa landowners capitalizing on the higher land values of their decreasingly valuable agricultural land. In reality, the sale and illegal development of ejido land is a spatial strategy that underpins political agendas. The assumed correlation between poverty and ecological degradation, where illegal land sales and subsequent groundwater contamination are inevitable, simply does not hold

true. Ejidatarios are not faced with a strict tradeoff between protecting their land while living in poverty or selling their land despite the environmental consequences. Instead, the processes of urban growth that led to the 1989 PREX illustrate policies and politics that favor urbanization, regardless of environmental impacts.

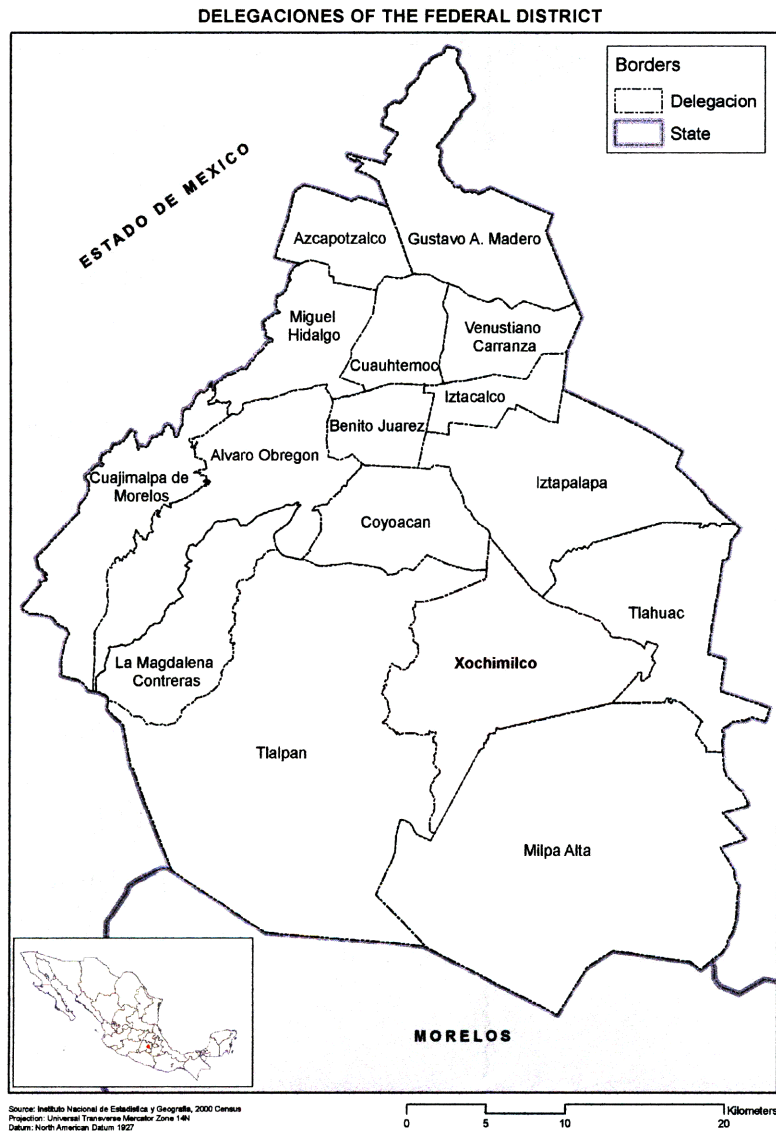
2.3 The PRI's control of the Federal District: 1930 - 1980

Paralleling physical growth and economic development, Mexico City's political institutions expanded to meet new migrant demands and secure their votes. Urban politics—the race for votes—became the key to controlling the Federal District and, given Mexico City's increasing economic and political sway, national power (Ward, 1990). Beginning in the 1930s, the PRI established itself as the dominant political party, and in many ways the PRI's political strategies enabled the expansion of irregular settlements on agricultural and ecological conservation lands located on ejidos. The PRI's strategies relied on the integration and co-optation of social groups such as rural migrants living in irregular settlements, laborers, ejidatarios, and small business owners. In turn, this strategy necessitated control of the territory in which the voters resided. The PRI controlled political territory in order to maintain control of Mexico City, and accordingly, Mexico.

The PRI was able to maintain a stranglehold on Mexico City's government through surprisingly undemocratic political institutions. In fact, until 1995 political power in Mexico City and Mexico remained highly centralized. (Mexico City became truly democratic in 1995 when residents of the Federal District were finally able to vote for the mayor.) Prior to 1995, the President of the Republic of Mexico

appointed the mayor, known as the regente, of the Federal District. The mayor then selected the leaders of the 16 boroughs, the delegaciones, which comprise the Federal District (See Figure 2, Delegaciones of the Federal District).

Figure 2



In turn, the President approved the selection of the delegacion leaders (delegados) (Pezzoli, 2000). For most of the twentieth century the PRI's power extended from

the nation's executive office to the boroughs of the Federal District. As Pezzoli observes, "The official justification for this arrangement is that the Federal District is a territory accountable to the entire republic. Because Mexican citizens do directly elect the nation's president, it is assumed that the president can rightfully appoint a mayor (the regente) to govern the Federal District" (Pezzoli, 2000: 145). Although a 1988 referendum granted increased power to the Assembly of Federal District Representatives (ARDF)—a DF body composed of elected representatives—the DF's notably undemocratic structure established the basis of PRI power and placed politically appointed delegados and the regente in the positions necessary to maintain power.

Historically, the PRI acquired votes and secured its electoral base through institutions that channeled citizen demands to PRI decision makers. The PRI's power was based on its ability to secure votes from three key sectors: The National Confederation of Farm workers (CNC), which organized rural and ejido voters for PRI political causes, the Confederation of Mexican Workers (CTM) which organized labor, and the National Confederation of Popular Organizations (CNOP), which organized a variety of actors including small businesses and colonos. These institutions established political constituencies, secured votes, and were calculated to maintain power:

The [PRI] government party created a third political sector within its structure in 1943, the so called *Sector Popular*, to draw in within its ranks all those left out of the peasant (CNC) and labor sectors (CTM). Organized under the name of National Confederation of Popular Organizations, the CNOP assembled the rapidly growing irregular settlements' population demanding land, titles, and services...The CNOP thus succeeded in seizing the representation of an important constituency in the periphery...The

government could now operate its control of the irregular settlers through coopted leaders... (Cymet, 1992: 45).

This institutional integration was premised on control of citizen groups; the PRI and its attendant institutions balanced populist policies with the capacity to squelch citizen protests that did not align with its vertical institutional structure.

2.4 The PRI's waning power: Citizen discontent in the 1980s

By the 1980s this corporatist strategy began to erode the PRI's legitimacy across the nation and within the Federal District. In the 1988 presidential elections, the PRI achieved a dubious victory:

The election results were a huge embarrassment for the PRI, in part because they did so badly; in part because of the doubts that surrounded the way in which the results were published. The delay (of almost one week) before full results were announced fuelled rumors that the PRI had actually lost the election. The results, when they came, declared that Salinas (PRI) had gained 50.36% of the vote; Cardenas (Democratic Front) 31.13 percent; and Clouthier (PAN) 17.07 per cent. There seems little doubt that the bare 50 per cent majority over the opposition was contrived. (Ward, 1990:67)

In the Federal District the PRI's waning popularity was blatant: Salinas (PRI) won only 27 percent of the Federal District while Cardenas won 49 per cent of the electorate. Voting results within the Federal District affirmed an increasing dissonance between metropolitan demands and the PRI's agenda. Indeed, Cardenas swept the Federal District's peripheral delegaciones with irregular settlements, where he garnered over 50% of the votes. The CNOP's ability to secure PRI votes in the irregular settlements—through clientelism, negotiation, cooptation and even repression—was clearly declining (Ward, 1990: 82).

Although Mexico City residents did not support the PRI in the late 1980s, they remained subject to the PRI's control of national, and therefore, metropolitan power. In this light, disaffected citizens sought new opportunities and venues to voice their political demands (Davis, 2002; Pezzoli, 2000; Varley, 1993).

Documenting Mexico City's social and political changes, Pezzoli writes:

...the political foundation of the "populist pact" of the past—which had been based on an unity of organized labor, peasant organizations, and popular sectors loyal to the dominant political party (PRI)—is undergoing significant changes. One of the most important changes is the transition from an emphasis on protest toward efforts to build actual social and political alternatives. Foweraker and Craig (1988a, 2) argue that "the proliferation of popular movements outside of (but also within) the traditional postrevolutionary, corporatist structures is one of the most significant developments in Mexican politics in the past twenty years." (Pezzoli, 2000: 146)

As Pezzoli and other experts observe, the PRI's established clientelistic and top-down approach to garnering votes and controlling social groups had begun to backfire. The roots of this discontent first appeared in the early 1970s when a marked increase in independent popular movements emerged outside of the PRI's purview (Varley, 1993: 256). Of these social movements, the urban poor in Mexico City were one of the key social groups that the PRI attempted to integrate into its structure by tacitly permitting the creation of irregular settlements on ejidos.

By the 1970s groups of colonos, disenfranchised with the CNOP and the PRI's unresponsiveness to their demands for land tenure and urban services, began to organize protest movements and seek alternative methods for securing land tenure. These movements, known as *frentes*, gained visibility and political traction, and in response to their increasing presence the federal and DF government created

institutions to regularize land tenancy. On June 1, 1973 the DF government founded the Trust for Social Interests and the Urban Development of Mexico City (FIDURBE) to regularize and develop ejido lands and private property. On August 20, 1973, President Luis Echeverria created the Commission for Regularization of Land Tenancy (CORETT) to regularize irregular settlements on ejido land. Because almost all irregular settlements were located on ejidos (which are federally managed), CORETT became the preeminent land regularization institution (Cymet, 1992:53).

Regularization provided urban services, land title, and official land tenure, and as such, was colonos' foremost objective (Varley, 1993; Cymet, 1992). But, CORETT's purpose extended beyond mere land titling efforts. In keeping with the PRI's previous strategies, the creation of CORETT was to "counter the political influence of the opposition movements with a territorial basis in illegal settlements" (Varley, 1993: 261). Akin to the creation of CNOP in 1943, CORETT was a superficial institutional response to longstanding discontent in the irregular settlements—an institutional accretion rather than an entirely new body and agenda. CORETT was a politically calculated move: regularization demobilized citizen political activity and remobilized it along established channels; securing land title and urban services made colonos dependent on state agencies and local delegados once again (Varley, 1993: 262; Azuela, 1989: 124). Instead of uniting citizen groups, regularization disintegrated social movements:

The defining element of popular mobilization's most successful strategic initiatives has been its formation of political alliances. These alliances have become especially important given that civil society in Mexico suffers multiple sectorial, regional, political, and cultural cleavages and that "political control has traditionally been assured by the clientelistic relations

which reinforce the divisions between its many and various constituencies (Foweraker 1989, 111). (Pezzoli, 2000: 148)

Even today Mexico City's citizen movements must contend with the ingrained vertical connections between civil society and political parties in order to achieve political objectives such as land tenure. Paradoxically, popular social movements must overcome the same political and institutional terrain—entrenched clientelistic channels—that they resist: “...struggles tend to be defined by the legal and institutional terrain; they become institutionalized through political mediation” (Pezzoli, 2000: 254).

Although CORETT was an effective tool—it provided land titles conditioned on political patronage—it nonetheless substantiated a degree of skepticism from both colonos and ejidatarios in government projects. This same skepticism manifested in PREX where stakeholders perceived environmental remediation as a disingenuous attempt to expropriate the ejido for private development.

Indeed, regularization consistently affected ejidatarios adversely. Regularization—and the requisite expropriations—divested ejidatarios of their land and heritage:

Land for ejidatarios is not a simple commodity for speculation, but the source from which they draw a living. For the ejidatarios expropriation signifies the loss of their livelihood and their way of life. When they lose that livelihood and expropriation is carried out, they find that compensation payments are minimal and uncertain” (Cymet, 1992:90).

Although ejidatarios are often implicated and culpable of selling land illegally to colonos, the history of expropriations in Mexico City and the frequent resistance to CORETT demonstrate that ejidatarios did not benefit in clear and obvious ways from

the regularization process. In this capacity CORETT was more of a political tool than a solution to land tenure issues on urban ejido lands. CORETT's regularization projects consistently provoked widespread ejidatario resistance (Cymet, 1992: 90), which makes the PREX case a noteworthy puzzle, as the ejido of Xochimilco departed from standard ejidatario responses to regularization: they ultimately acquiesced to expropriation of the ejido while the ejidatarios of San Gregorio continued to resist expropriation. Discussed in detail in chapter 4, the ejidatarios' of Xochimilco eventual acquiescence to expropriation reflected citizen resistance that was circumscribed by historic links between the Comisaria Ejidal of the ejido of Xochimilco and the PRI and the Confederacion Nacional de Campesinos (CNC).

2.5 Mexico City's geopolitical jigsaw: competing and conflicting institutions

Despite its federal mandate, CORETT was not the PRI's silver bullet; CORETT did not halt the expansion of irregular settlements and it did not yield watershed regularizations (Jones, 2000; Cymet, 1992). Nonetheless, CORETT did produce unanticipated political repercussions: by addressing federally managed urban ejidos in Mexico City, CORETT broached the latent institutional jigsaw of delegacion, metropolitan, and federal government agencies dedicated to ejido land administration.

Regularization of irregular settlements on ejidos requires expropriation of the ejido in order to officially change the land from ejido stewardship—communal ownership, usufruct property rights, and agricultural land uses—to urban land that can be legally parsed, titled, and developed. Regularization in the Federal District

also changes administrative jurisdiction. At the time of the PREX, ejidos were managed by the Secretariat of the Agrarian Reform (SRA, an agricultural federal agency) and urban land was dually overseen by the Secretariat of Urban Development and Ecology (SEDUE), which planned land uses, and the DDF and delegaciones which were tasked with implementing zoning. Additionally, ejidos containing Natural Protected Areas and Ecological Conservation Lands—which comprise 59% of the Federal District’s area—were under federal administration of the SAHOP (later changed to the SEMARNAT), and underwent additional environmental impact studies performed by delegacion offices of Land Tenancy prior to regularization (Transcribed Interview with Victor Hugo Aguirre Hoffman, 2008). In total, the multiplicity of government agencies acting on urban ejidos generated an “administrative limbo” (Azuela, 1989; Varley, 1993) of competing and conflicting laws and institutions, which in turn encumbered application of environmental laws and regulations. “Federal and local actions in the same territory leaves insufficient clarity on the fields of action of different levels of government and this implies a great difficulty in the application and completion of environmental laws...” (Schteingart and Salazar, 2005: 48) (See Figure 3 and Figure 4).

Figure 3

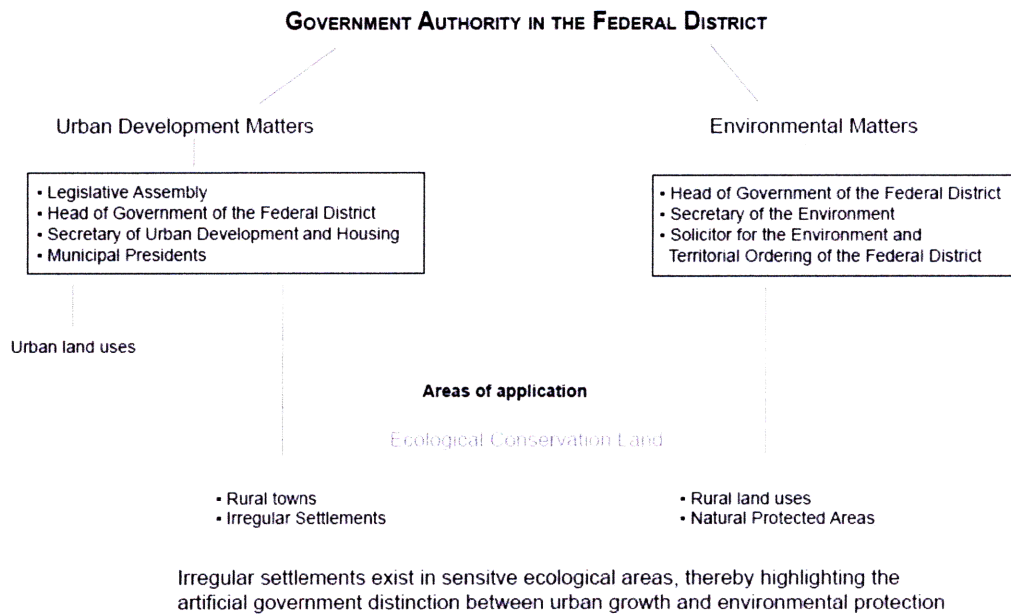


Figure 3: Government institutions overlap in their administration of irregular settlements on ecological conservation lands. Adapted and translated from Schteingart and Salazar 2005: 49

Figure 4

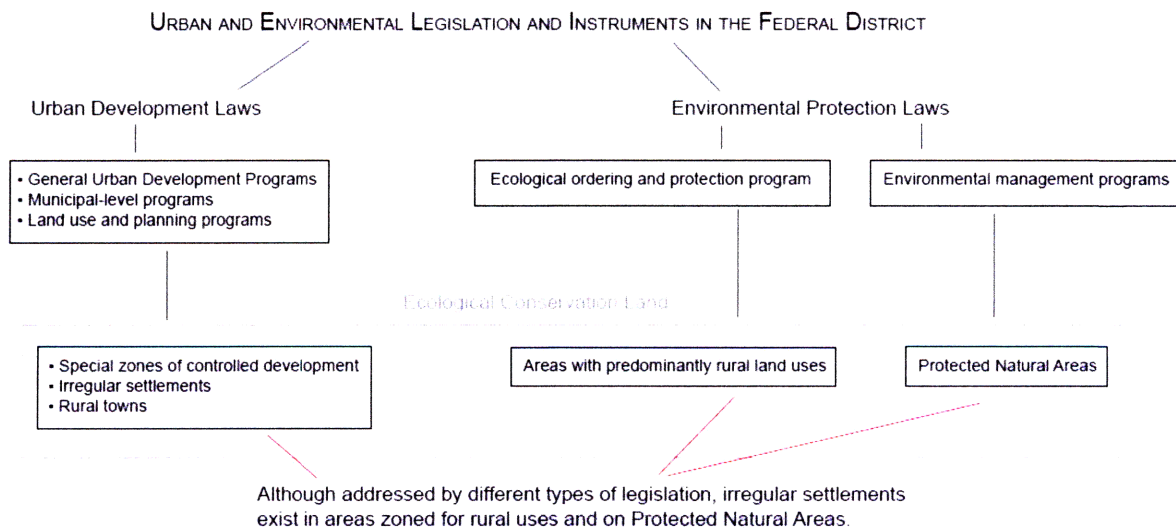


Figure 4: Similar to the institutional overlaps illustrated in Figure 3, it is unclear how urban and environmental legislation apply to irregular settlements on Ecological Conservation Lands. Adapted and translated from Schteingart and Salazar 2005: 54

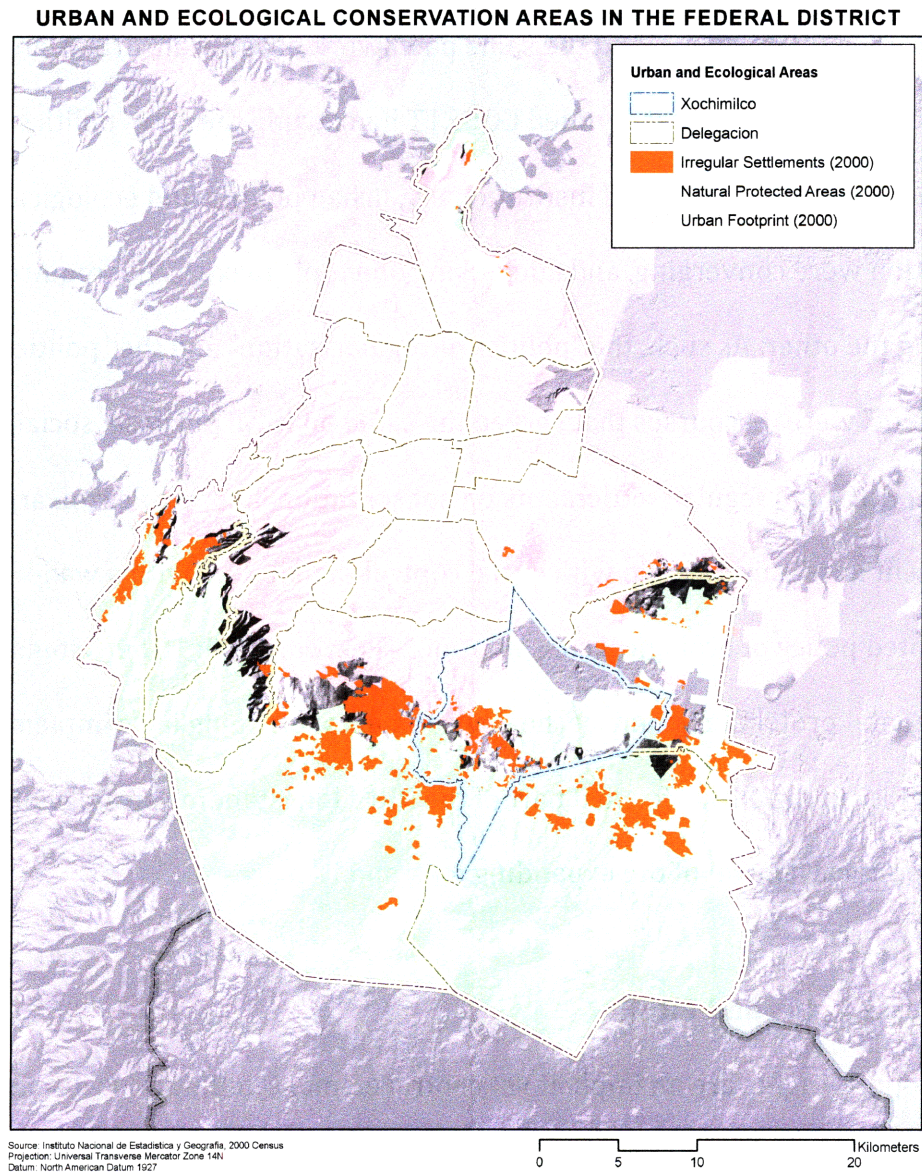
Just as urbanization transformed the social and economic basis of livelihood in ejidos, CORETT revealed the institutional conflicts engendered by the urbanization of agricultural and ecological conservation land.

In the 1980s this amalgam of competing institutions in urban ejidos was compounded by an array of new policies that addressed environmental degradation engendered by unplanned urban growth. The PRI had condoned and enabled the expansion of irregular settlements, but by the 1980s this pattern of urban growth had denuded peri-urban forests and contaminated Mexico City's aquifer (Aguilar, 2008). Deteriorating environmental conditions—which had begun to affect the metropolitan area—required a government response. In this capacity, the administrative limbo within ejidos reflected a gradual transition from the PRI's "politics of regularization", which included the creation of CORETT, to the "politics of containment" (Pezzoli, 2000) intended to guide urban growth, control unfettered expansion on peri-urban ejidos, and ostensibly manage the convergence of urban growth and environmental degradation within the Federal District.

To control the expansion of irregular settlements the DDF implemented a series of laws and programs in the 1980s including a master plan for the Federal District called the 1987-1988 General Program for the Urban Development of the Federal District. Notably, and possibly to skirt the messy institutional overlap in urban ejidos, the master plan divided the DF into two discrete areas: 43% of land would be dedicated to urban development in the north and 57% would be allocated to ecological conservation and rural development in the south, including a large

portion of Xochimilco (Pezzoli, 2000: 181) (See Figure 5, Urban and Ecological Conservation Areas in the Federal District).

Figure 5



The plan embodied growth management strategies designed to curtail the expansion of irregular settlements—and the attendant ecological degradation—by limiting urban growth to prescribed areas.

However, urban development cannot be divorced from ecological conservation in urban ejidos, and the same patchwork of agrarian, urban, and conservation institutions that stymied CORETT hamstrung the new “politics of containment.” Both spatially and institutionally, urban politics and ecological conservation were converging, and addressing one topic inextricably required addressing the other. As such, the “politics of regularization” and the “politics of containment” were discourses that served the same political purpose: social and political control of irregular settlements on conservation land. As Pezzoli argues, containment has, “...more to do with social control than it does with a well-implemented policy of ecological conservation” (Pezzoli, 2000: 181). Ostensibly for environmental protection, many of the environmental planning laws implemented in Mexico City in the 1980s formed part of the PRI’s longstanding strategy of securing political control of the expanding metropolitan area.

2.6 Property rights and PREX

Property rights are an implicit yet central element in the above discussion of the politics of regularization, the politics of containment, and political control of new territory. For instance, CORETT’s process of regularization brings to light the political dynamic in individual property ownership: by granting individual land

titles, the PRI was able to splinter social movements in colonias and reconnect individual colonos' demands to the PRI's vertical structure. In addition to politics, however, different forms of property rights also pertain to different resource management strategies. The expropriations in PREX illustrate these ideas and frame an important debate regarding property rights and management of communal resources.

In 1968 Garret Hardin posited that areas with communal resources—the communal water and usufruct agricultural lands in the ejidos of Xochimilco and San Gregorio, for example—would be trapped in a tragic pattern of overconsumption known as the tragedy of the commons (Ostrom, 2009: 25; Hardin, 1968). In the absence of individual property rights, ownership, and the right to exclude others, it would benefit no single resource user to conserve community resources or mitigate environmental damage:

The rational man finds that his share of the cost of the wastes he discharges into the commons is less than the cost of purifying his wastes before releasing them. Since this is true for everyone, we are locked into a system of "fouling our own nest," so long as we behave only as independent, rational, free enterprisers. (Hardin 1968: 122)

The only solution to this collective problem would be the imposition of a new institution—private property—by an external authority such as the state. Although inaccurate, this line of thought manifests in the PREX in two ways.

First, expropriation of ejidos and creation of private property was a deceptively straightforward remedy for environmental degradation in urbanizing areas. Predictably, it also coincided with the broader economic shifts in the country. Mexico was in the process of opening its borders to global competition and trade,

and the overarching preference for free market economics is blatant in the PREX, which was originally conceived as a public project financed by private capital (Plan de Rescate Ecologico, 1989, DDF). To this end, private property rights seemingly wielded the power to correct overconsumption of communal resources and smooth the transition to private investment in public works (Davis, 2002; Davis, 2007).

Second, government planners believed that expropriation of ejido land and designation of the expropriated land as either public or private property would be the only way to address the complex issues of communal ownership and environmental degradation. PREX embodies an ideology in which only a strong, externally imposed government project could remedy environmental degradation in the area. Nonetheless, just as regularization repeatedly provoked widespread ejidatario protests, PREX was an imposed property rights regime—a new institution—that was incommensurate with the ejidatarios' history of communal land stewardship.

Recent work on common pool resources (Ostrom, 2005), however, demonstrates that extant community institutions, norms, and property rights may be the most effective methods of managing communal resources. External solutions and creation of private property rights do not guarantee the protection of natural resources: "Theorists frequently implicitly assumed that regulators would act in the public interest and that they knew how ecological systems work and how to change institutions so as to induce socially optimal behavior" (Ostrom, 2009: 26). As Ostrom points out, the problem with PREX was that it imposed an institutional change that was a nostrum for environmental remediation. Indeed, given the

climate of ejidatario skepticism and a history of political clientelism, this external formulation of property rights and environmental planning ultimately increased the transaction costs of the project, by leading several ejidatario groups to resist the PREX through 1992.

2.7 Summary

Mexico City's rapid growth created the conditions in which political clientelism flourished and irregular settlements grew haphazardly across peri-urban ejidos. However, by the 1970s and continuing into the 1980s, citizen disenfranchisement with the PRI's clientelistic practices and control of political representation lead to waning public support for the party in irregular settlements. Colonos sought new channels of political representation and new methods for achieving land tenure. To this end, the creation of the land-titling agency CORETT in 1973 illustrates one of the PRI's responses to growing citizen unrest and their attempt to secure votes from within the irregular settlements. CORETT supplied land titles to splinter community groups, thereby reorienting citizen demands into the PRI's vertical structure once again. Nonetheless, CORETT did not prove to be a viable solution to waning popularity or the unfettered expansion of irregular settlements.

In addition to citizen disenfranchisement, urbanization promoted through political clientelism produced negative environmental externalities: environmental degradation and contamination of the metropolitan area's water. And, addressing the environmental dimension of urbanization proved to be difficult as urban ejidos

and irregular settlements were mired in an administrative limbo (Azuela, 1989) resulting from conflicting and competing agricultural, urban, and ecological government agencies at the federal and metropolitan level.

With political support declining and environmental conditions worsening, the 1989 PREX had a two-fold objective: revitalize the PRI's standing through visible public projects and incorporate private capital into public works. Nonetheless, the extant ejido institutions of Xochimilco—enabled by communal property rights—contrasted with the PREX's agenda to expropriate and transform the ejidos into an urban ecological park. In many ways the contentious atmosphere of the PREX stemmed from ejidatarios' unwillingness to have their ancestral agricultural lands expropriated for a government project suffused with private capital. As the following chapter illustrates, this local opposition was premised on skepticism: the DDF had consistently and historically permitted environmental degradation of the ejidos of Xochimilco and San Gregorio, and as such, ejidatarios asked whether the PREX was an environmental remediation project or an urban development master plan.

Chapter 3: Urbanization in Xochimilco

3.1 Chapter overview

This chapter illustrates how the unplanned—but tacitly condoned—urbanization discussed in chapter 2 manifested concretely in Xochimilco, and in the process, engendered environmental degradation. Section 3.2 outlines the convergence of urban development and ecological conservation issues in the ejidos of Xochimilco and San Gregorio. Sections 3.3 and 3.4 specify the water problems and the sources of environmental degradation prior to the 1989 PREX. And, section 3.5 concludes the chapter by addressing an unanticipated outcome of the PREX planning process: Why did the ejido of Xochimilco acquiesce to the project while the ejido of San Gregorio continued to resist? I argue that water contamination from irregular settlements—engendered by political strategies that permitted illegal urbanization—disproportionately affected the chinampas in the ejido of San Gregorio, thus fueling and solidifying their oppositional movement.

3.2 The environmental impacts of urbanization in Xochimilco

Ecological degradation in Xochimilco parallels the growth of the Mexico City metropolitan area. Located to the south of downtown Mexico City, Xochimilco's landscape is unique within the city's expansive urban fabric. Chinampas, canals, and bountiful harvests distinguish this pocket of agricultural land. However, by the late

1980s urban growth had encroached on this rural area. In turn Xochimilco became a dynamic interface between ejidatario institutions and advancing urban development. These contrasting forces were embodied in the juxtaposition of the different social groups—ejidatarios and chinamperos vis-à-vis urban politicians, real estate speculators, and immigrant settlers in the informal settlements—as well as contrasting federal and metropolitan institutions.

Similar to the institutional overlap that CORETT revealed, the ejidos of Xochimilco were entangled in their own administrative limbo. The Secretariat of the Agrarian Reform (SRA) managed ejido institutions and land; the National Water Commission's (CNA) jurisdiction included all water-related issues within ejidos; and Natural Protected Areas (ANPs) were managed by the National Commission of Natural Protected Areas, a division of the Secretariat of the Environment and Natural Resources (SEMARNAT). Local land uses and zoning, however, were administered by the DDF⁶. This geopolitical jigsaw prevented the delegacion of Xochimilco from becoming a space of convergence, and instead Xochimilco's iconic landscape became the battleground in which local groups, NGOs, and academics engaged neighborhood, city, and national politicians, and negotiated the outcome of the PREX.

The overlapping and conflicting government agencies—at federal and metropolitan scales—working within Xochimilco established a strong and visible government presence, but also set the tone for the PREX. Even though government agencies administered the same geographic area, the agricultural federal

⁶ In Mexico municipalities normally attend to planning and zoning. However, as a Federal District, Mexico City contains no municipalities—only delegaciones. As such, the DDF administers zoning.

institutions such as the SRA competed with the urban development agendas of the DDF and SEDUE. It is therefore somewhat remarkable that this overwhelming government presence did not ensure a smooth planning process instead of the bifurcated outcome seen in 1993. Similarly, demographic growth and the spread of irregular settlements vis-a-vis ejidatario opposition to expropriation outlined the diverse and conflicting stakeholder agendas.

Ecological degradation in Xochimilco in 1989 was linked to the growth of Mexico City, and this urban growth engendered three types of environmental change: overexploitation and contamination of sub-surface water, expansion of irregular settlements on ecological and agricultural land, and land subsidence and desiccation of the canal network throughout the chinampas within the ejidos.

3.3 Overexploitation and contamination of water resources

Before it became the site of urban development pressure, Xochimilco provided the water that underpinned Mexico City's urban and demographic growth. In the early twentieth century, the metropolitan area had exhausted the surface and subsurface water available in Santa Fe and Coyoacan (Legoretta, 1994). Accordingly, from 1909 to 1913, President Porfirio Diaz constructed an aqueduct that delivered water from the wells and springs of Xochimilco to the center of the Federal District. Following creation of the aqueduct system, Xochimilco supplied an estimated 70% of the Federal District's water. Although a useful stopgap measure, the aqueduct and an ineffective water pricing system engendered over-extraction that persisted throughout the twentieth century. By 1989, this same aqueduct relied on 78 newly

constructed deep wells throughout Xochimilco—all surface springs were exhausted—and only supplied 15% of Mexico City’s water (Plan de Rescate Ecologico de Xochimilco, DDF, 1989). Seventy-six years after the creation of the Porfirio Diaz aqueduct in 1913, Mexico City’s urban footprint reached the sprawling infrastructure that preceded it, only to discover that Xochimilco’s agricultural and water resources had been depleted.

Within Xochimilco, metropolitan water extraction altered the hydrology of the area, and accordingly, the irrigation system that enabled bountiful agricultural production in the chinampas. By mid-century most springs had been exhausted and aquifer levels had fallen so markedly that the physical geography of the chinampas changed. Canals dried up, chinampas subsided—wreaking havoc on the network of irrigation canals—and agricultural production waned. From 1985-1987 chinampas within the ejidos of Xochimilco and San Gregorio sank by an average of 45 centimeters. Water was diverted from the Cerro de Estrella water treatment plant in Iztapalapa in 1953 to mitigate land subsidence and desiccation of the canals. Although this artificially maintained water levels within the primary canal network, it altered the area’s ecology. Water from the Cerro de Estrella plant was sewage that had received an inconsistent “secondary” treatment before being diverted into the canals. As such, the 700 liters per second of water injected into the canals was contaminated and of questionable quality for irrigation (Plan de Rescate Ecologico de Xochimilco, DDF, 1989; Wirth, 1997). Mexico City’s massive urban infrastructure permitted metropolitan water users to consume Xochimilco’s water resources and

subsequently redirect their wastewater and sewage—via the same infrastructure—back to the area.

Metropolitan water extraction remastered Xochimilco's geography in two ways. First, the greater metropolitan area's demand for water drew the once-peripheral area of Xochimilco into the metropolitan sphere. Extraction of Xochimilco's water via infrastructure engendered a relationship between Xochimilco and the greater metropolitan area in which the center of the city consumed Xochimilco's water at a low cost. This hydrological linkage transcended watersheds and political jurisdictions, thereby obfuscating the source of the water from the site of consumption. Similarly, the production of wastewater—and where that wastewater was sent—was unclear to domestic users, and metropolitan water consumption entailed water pollution in Xochimilco. Second, water extraction produced acute and dire effects in Xochimilco's agricultural production and accordingly, the local agricultural economy. Xochimilco's water was consumed from afar, but the effects of metropolitan water extraction were reified in waning agricultural production and water scarcity. Xochimilco was incorporated into the growth of the metropolitan area through water infrastructure that facilitated the expansion of the urban footprint.

3.4 Expansion of irregular settlements on ecological and agricultural land

Paradoxically, water from Xochimilco fueled the urban growth that transformed the delegacion of Xochimilco and southern Mexico City into an urban area. Demographic changes and urbanization in Xochimilco corresponded with

increasingly dire water problems. Indeed, the influx of migrants from Mexico and Mexico City stretched limited sewerage capacities and compounded water contamination. Between 1960 and 1980 Xochimilco's population grew from 70,381 to 206,402 inhabitants (Schteingart and Salazar, 2005:69), and government planners estimated that Xochimilco's population grew by 6.1% annually throughout the 1980s. This rise in population taxed Xochimilco's sewerage systems, and in 1989 the delegacion estimated that only 65% of all residences were connected to sewerage and drainage networks. Effluent from urban residences and irregular settlements adjacent to the ejidos thus contributed to the "aguas negras" (black waters) that collected in the low-lying canals and chinampas. Although the ejidos of Xochimilco and San Gregorio had not been entirely urbanized or covered with irregular settlements, they were nonetheless subject to ecological degradation from urbanization in the surrounding areas.

These demographic changes also signaled a change in land uses in which contaminated agricultural plots became valuable sites for development of irregular settlements or real estate speculation. This illegal urban growth occurred at the hands of fraccionadores, private firms, and real estate speculators. By 1970 illegal sales of communally owned land became "uncontrollable" (Plan de Rescate Ecologico de Xochimilco, DDF, 1989). New transportation arteries including the Mexico-Tulyehualco highway, built in the 1960s and 1970s, and the construction of a light rail that connected the metro Taxquena station to Xochimilco in 1988 opened up real estate within Xochimilco (Wirth, 1997). Xochimilco was now linked to

downtown through metropolitan commuting patterns and new housing developments.

This spurt of urban growth came at a high environmental cost. In 1987 there were an estimated 87 irregular settlements throughout the delegacion, 65 of which were located on ecological lands or chinampas. Between 1960 and 1980, expansion of irregular settlements had changed land uses from agriculture to urban development on an estimated 50% of the chinampas (Foro Sobre el Rescate Ecologico de Xochimilco, Canabal, Rueda, Torres-Lima, 1989: 59). Surprisingly, this intense and environmentally disastrous pattern of urban growth was not unprecedented. Although ad hoc in physical form, irregular settlements were enabled by overarching metropolitan political agendas.

3.5 Environmental degradation as the basis for citizen mobilization

The Project for the Ecological Rescue of Xochimilco (PREX) reflected the political processes and strategies of PRI co-optation of citizen resistance. The PREX was initially resisted by ejidatarios and local landowners who subsequently organized citizen groups, allied themselves with local NGOs and academics, and engaged the DDF in negotiations. Concurrently, the PRI and the Partido Revolucionario Democrático (the PRD, a leftist party) attempted to co-opt different groups by pandering to the divergent interests. However, the outcome of the PREX, in which the ejidatarios of Xochimilco acquiesced to government expropriation while a handful of San Gregorio ejidatarios continued to resist the project through a federal court injunction, is incongruous with the aforementioned patterns of

political co-optation. As will be discussed in the following case study, the ejidatarios of both ejidos were subject to the same political strategies and the same gamut of government agencies. Given this proximity to multiple representatives of the federal and Federal District government, what led to the bifurcated outcome of the PREX following the public negotiations with the DDF? Why did the ejidatarios of Xochimilco acquiesce while representatives of San Gregorio continued to distance themselves and resist the PREX? What aspect of the planning process produced divisions in the ejido stakeholders?

The following chapter postulates that continued resistance in San Gregorio hinged on widespread environmental degradation—flooding and contamination of the chinampas—within the ejido San Gregorio. Because the expansion of irregular settlements was a political strategy tacitly endorsed by local politicians, San Gregorians were unified in their opposition to the clientelist political structure that had failed to address the environmental consequences of unplanned urban growth. Even though the ejidatarios of Xochimilco and San Gregorio had not permitted widespread expansion of irregular settlements on their own ejidos, they were still subject to political and ecological forces that emanated from beyond their borders and were beyond their control.

For instance, the nearby ejido of Ajusco contained irregular settlements, which affected the environment of the ejidos of Xochimilco and San Gregorio. Effluent from these neighboring areas collected in the low-lying ejidos of Xochimilco and San Gregorio. The ejido of San Gregorio was most affected by these external factors, and almost the entire ejido was inundated with aguas negras. As such, the

PRI's political gains came at the cost of ecological degradation, which ultimately catalyzed and solidified citizen resistance in San Gregorio. In PREX, the perceived distance (Davis, 1999) between ejidatario groups and government agencies determined the processes of participation. The ejidatarios of Xochimilco had historic ties to the PRI, whereas the ejidatarios of San Gregorio—adversely and disproportionately affected by the flooding and environmental pollution—perceived a political distance between their agrarian values and the urban political agenda of the PRI.

Chapter 4: The case study

4.1 Chapter Overview

This chapter begins by presenting the detailed political backdrop of PREX. In section 4.2 I outline the PRI's overarching objectives and motivations for undertaking the project. Sections 4.3 and 4.4 present the details of the original plan and the alternative ejidatario plan developed in response to PREX, highlighting the strengths and weaknesses of each respective plan. Section 4.5 outlines the beginning of the citizen resistance movement and provides the transition to part II of this chapter.

In part II of this chapter I explain how and why ejidatarios from Xochimilco and San Gregorio engaged the DDF through two different processes of participation. I present the three factors that explain the two different processes of participation: Connections to political and social institutions (section 4.6); Competition between ejidatario groups for representation and the ensuing disintegration of unified resistance (section 4.7); and Mobilization around ecological degradation in San Gregorio (section 4.8). In section 4.9 I summarize and discuss the unanticipated and dual processes of participation in the ejido of Xochimilco and the ejido of San Gregorio.

4.2 The politics of the PREX

The Ecological Rescue Project of Xochimilco was first proposed in the 1989-1994 National Development Plan (PND). The 1989 plan featured Xochimilco as one of three large-scale urban development projects including Santa Fe, to the north of Mexico City, and the historic downtown, the Centro Historico. National elections in 1994 would coincide with the completion dates of these projects, and as such, these projects embodied political agendas: improvements in the services and the built environment of the republic's capital would revitalize the PRI's waning popularity. The project relied on the PRI's control of national, DF, and delegacion governments, and focused these political forces on the ejidos, chinampas and irregular settlements of Xochimilco. Moreover, this bold government plan was underpinned by new economic objectives. As stated in the PND:

The city of Mexico is the sum and inheritance of traditions and values that form part of the national identity. Those spaces that have importance and significance for the patrimony of the country—such as the Centro Historico and Xochimilco—will receive directed attention to save them and preserve them, thus providing social and private financial support, and regulating the land uses and activity undertaken within them. (Uno Mas Uno, Vazquez, 1989)

The PND was designed to incorporate private investment into the government's urban development projects. Beginning at a national level and manifesting in neighborhoods in Mexico City, the PRI's political strategies relied on visible government projects in the built environment and were suffused with private capital.

Despite the concerted political power and economic capital allocated to the project—approximately 75 million US dollars in present values—the PREX was not

implemented as the government planners of the DDF had intended. Initially PREX followed a routine public decision-making process in which city planners developed the plan in 1989, presented the plan, and, following citizen unrest, negotiated alternative implementation methods with citizens in 1990. However, the subsequent bifurcation in citizen mobilization after the 1990 negotiations, in which the ejidatarios of Xochimilco accepted the PREX while many ejidatarios of San Gregorio continued to resist the project, was unanticipated by government planners. Why did the negotiation yield a split outcome in which the majority of the ejidatarios accepted a suboptimal government compensation package while a minority of ejidatarios continued to resist the project by securing a federal court injunction?

4.3 The Ecological Rescue Plan for Xochimilco

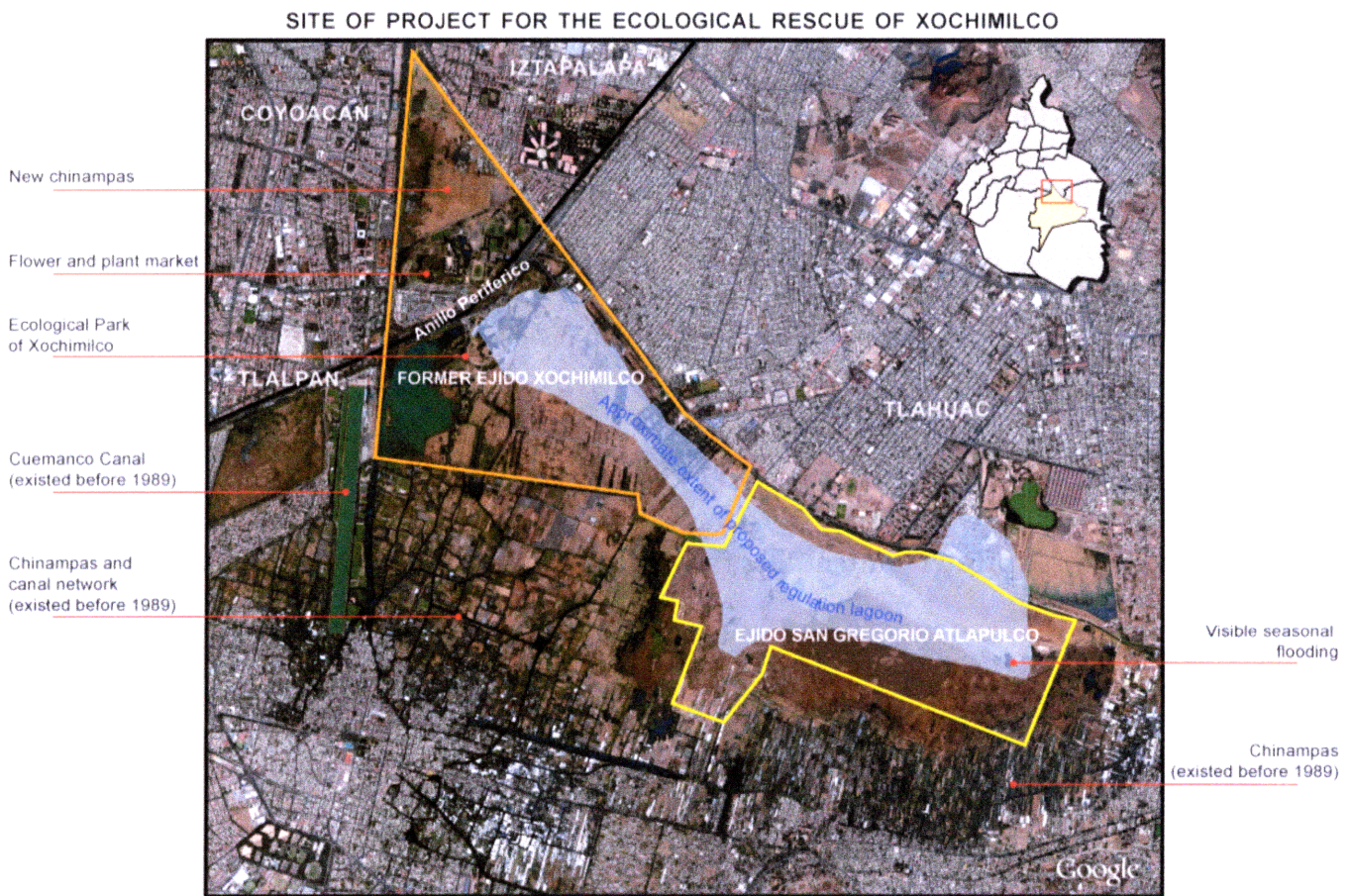
As outlined in an informational packet distributed by the delegacion of Xochimilco, PREX was intended to be complete in three years, thus restoring, “the grand vitality of the southeast of Mexico City...” by 1992. The plan had nine primary objectives:

- Stop urban growth in the low-lying chinampa and swamp areas [ie the ejidos]
- Induce recharge of the area’s springs to conserve subsurface water resources
- Prevent greater land subsidence in the lacustrine area
- Construct regulation lagoons to minimize the risks of flooding
- Improve water quality in the canals and lagoons
- Promote intensive agricultural and horticultural production using new technologies and delivering high economic returns
- Rescue the archaeological richness of the Xochimilca people
- Open and guarantee the permanence of new green and recreational spaces for the city

- Improve the economic and social conditions of the inhabitants of Xochimilco, given the deterioration and loss of environmental balance in the area

According to the original plan, these objectives required changes to infrastructure and the built environment; environmental engineering feats would reorganize the spatial configuration of ownership within the ejido (See Figure 6, Changes in the Landscape after PREX).

Figure 6: Changes in the landscape after PREX



First, to avoid damage from seasonal flooding and runoff, the plan proposed two regulation lagoons: The Large Marsh with an area of 97 hectares and a two million cubic meter capacity, and The Small Marsh with an area of 73 hectares and a capacity of 1.5 million cubic meters (Plan de Rescate Ecologico de Xochimilco, DDF, 1989). Complemented by investments in water pumping stations and collection areas for runoff from irregular settlements, these regulation lagoons were the key engineering intervention in the area, and would solve many of the hydrological, land subsidence, and environmental degradation problems facing Xochimilco. Both the urbanist Jorge Legoretta and researcher Beatriz Canabal of the Universidad Autonoma Metropolitana-Xochimilco attested to the necessity of the environmental engineering interventions in the ejidos (Transcribed Interview with Jorge Legoretta, 2008; Transcribed Interview with Beatriz Canabal, 2008).

To revitalize chinampa production the plan proposed upgrading metropolitan water treatment plants in San Luis Tlaxialtemalco and Iztapalapa (the Cerro de la Estrella treatment plant). Prior to 1989, these plants discharged metropolitan wastewater—oftentimes raw sewage—into the nearby canals and chinampas (Wirth, 1997). Upgrades would increase treatment capacity to “tertiary water treatment.” This enhanced water treatment would yield “almost potable water” that could be diverted back into the chinampas and canals, thereby revitalizing agricultural production (Plan de Rescate Ecologico de Xochimilco, DDF, 1989).

The plan also proposed entirely new land uses including a 69.5 hectare public ecological park. As outlined in the plan, the park would feature rowboat

rentals adjacent to the regulation lagoons, a port for the trajinera⁷ rides in the canals, amusement park rides for adults and children, a flower and plant market supplied by the chinampas, parking, picnic areas, a restaurant zone, an aquarium, botanical garden, and an aviary. Additionally, areas would be allocated for private sports clubs.

The most salient aspects of the plan are reflected in the changes in hydrology and use of space. The creation of the public park and regulation lagoons would require expropriation of 1,300 hectares: 780 hectares in the ejido Xochimilco, 258 hectares in the ejido San Gregorio Atlapulco, and 50 hectares from ejido Tlahuac⁸. The authors of the plan observe:

To complement the integrated ecological rescue efforts of the Ecological Rescue Plan of Xochimilco, the convenience of adding a series of projects whose objective will be to generate a recreational center in the southeast of the city, has been analyzed. These projects will permit the ordering of land uses within the delegacion, and will avoid urban expansion on unsuitable lands. (Plan de Rescate Ecologico de Xochimilco, DDF, 1989: 47)

The authors further note, "The actions in the Plan have favorable repercussions for tourist activities...The tourist and recreational activities will generate multiplier effects in the economy, which are significant for other commercial and service activities (Plan de Rescate Ecologico de Xochimilco, DDF, 1989: 44-45)." The project would redefine the area and change agricultural lands to an urban recreation

⁷ Trajineras are flat bottom boats used to navigate the canals of Xochimilco. Trajinera rides through the canals and the chinampas are a tourist attraction.

⁸ Tlahuac was originally included in the Ecological Rescue of Xochimilco. However, following the Accord of Concertation in 1990, the ejido was removed entirely from the government project. No part of the ejido was expropriated. Accordingly, I do not focus on Tlahuac in this analysis.

destination. These new land uses, in turn, implied new property types and institutions to govern the area.

The existing communal ownership and decision-making would be eliminated by the proposed land uses. By reordering the land through expropriation, and subsequently, allocation of privately owned individual parcels, land owners would be able to act and sell independently; the Comisaria Ejidal would no longer manage land uses within the ejido. It is therefore no surprise that the expropriations, changes in property types, planned development, and veneer of ecological remediation were the most contentious elements of the plan.

In response community groups studied and identified contradictions within the plan: why is it necessary to expropriate green spaces in order to “create more green spaces”? How can the plan claim to stop urbanization and ecological degradation when the plan itself calls for urban development of the expropriated lands? With the help of local NGOs, ejidatarios addressed these issues in their own, alternative plan.

4.4 The alternative ejido plan for the ecological rescue of Xochimilco

The “Plan Ejidal Alternativo para el Rescate Ecologico de Xochimilco y Tlahuac” was published by the local NGO Grupo de Estudios Ambientales in October, 1989, and begins:

We [ejidatarios and chinamperos] believe that ecological recuperation does not necessarily require expropriation. Regarding the stagnant water that floods the ejidos, we affirm that this inundation has not been random, but instead caused by The Authorities to justify expropriation” (Plan Ejidal Alternativo Para El Rescate Ecologico de Xochimilco y Tlahuac, 1989: 1).

The document proceeds to highlight contradictions within the original plan. For example, the original plan prescribes a 300-meter buffer—almost 34.1% of the expropriated area—to non-agricultural uses alongside the expanded Anillo Periferico. As Alfonso Gonzalez Martinez of GEA pointed out, it is hard to imagine how the original plan would achieve its goals of increasing green areas in Xochimilco by developing agricultural lands along the Periferico (Transcribed Interview with Alfonso Gonzalez Martinez, 2008). The urbanist Jorge Legoretta, another critic of PREX, asked why ejidos must be expropriated to provide green spaces for the city. After all, he observed, the Mexican Constitution stipulates that private property—not ejidos—should be the first site for potential expropriations. Moreover, downtown Mexico City is in greater need of green spaces than the ejidos of Xochimilco (Transcribed Interview with Jorge Legoretta, 2008).

Another contradiction centered on the proposed relocation of ejidatarios. The DDF proposed compensating ejidatarios in two ways. First, for environmental damages that prevented agricultural production in the past, ejidatarios would receive an indemnification: those from Xochimilco would receive \$46,000,000 pesos and ejidatarios in San Gregorio would receive \$30,000,000 pesos. Second, ejidatarios were promised either a plot of chinampa land or a parcel of land connected to urban services of up to 120 square meters. However, the DDF did not specify the location of the plots. With up to 3,000 potentially expropriated ejidatarios, where would the DDF find 360,000 square meters of chinampa or urban land?

The ambivalent compensation schemes and plans for development of the expropriated ejidos focused ejidatarios' attention on the project's ulterior agenda. In turn, the alternative plan addressed many of PREX's proposed physical interventions. Instead of regulation lagoons, the ejidatarios proposed perimeter canals around the ejidos that would extend for a total of 25 kilometers and hold an estimated 1.5 million cubic meters of water, effluent, and storm water runoff. The ejidatarios observed that this perimeter canal system would serve to demarcate the boundaries of the ejido vis-à-vis urban areas and moreover, would make expropriation unnecessary.

The alternative plan also revealed the internal social and political dynamics in the ejidos of Xochimilco and San Gregorio. The ejidatarios argued that creation of perimeter canals would not only eliminate the need for expropriation, perimeter canals would also preserve existing land uses and parcel distribution. Because titles and ownership of ejidos—and the ecologically and geographically adjacent chinampas—are inherited from parents, land parcels had been subdivided between children and grandchildren for generations. By 1989, this had produced a situation of ambiguous ownership nested within the communally managed lands. The alternative plan called for perimeter canals to avoid the redistribution of parcels that expropriation would require.

At first glance, this seems to be the most reasonable and useful incorporation of local knowledge. Redistributing parcels to ejidatarios would require an arduous land titling process. Previous government efforts and agencies—such as CORETT—had only been marginally successful in titling agricultural land for urban

development, primarily because of the susceptibility of land titling programs to the political economy of urbanization and ejidatarios unwillingness to forego control of their ancestral agricultural lands (Varley, 1993; Jones, 2000). Nonetheless, the call to maintain the ambiguous distribution of land titles also hints at a lack of consensus within the ejido. In this capacity, environmental planning in urbanizing locales cannot simply employ local knowledge and public participation into the project to facilitate implementation. In reality, peri-urban communities have multiple and divergent agendas stemming from complex property rights.

Expropriation would entail the redistribution of individual plots and enable individual decision-making, thus eroding the community management of the ejidos and the power of the Comisaria Ejidal. What the alternative plan did not state explicitly, but was obvious from the organized resistance, was the heterogeneous composition of the ejido: some groups wanted to resist expropriation and maintain control of their land; others, having seen the gains from urban development, wanted to sell their land, but for higher prices than the DDF initially offered. In this vein, the indemnifications offered by the DDF were not only a monetary compensation for expropriation, they had the secondary effect of dividing the ejido and fracturing their resolve to resist (Martinez, 1989: 24). An initial supporter of the ejido resistance, ARDF representative from the PRD, Rocio Huerta, argued, "You cannot impose projects that, even though they are good, could change the customs of a village and foment existing divisions" (La Jornada, October 9, 1989).

Most importantly, the alternative plan proposed a Regional Water Commission to address water management in the Xochimilco hydrological basin.

The commission would be composed of ejidatarios, chinamperos, academics, engineers, and bureaucrats. This commission would serve several purposes. In addition to monitoring the progression of PREX, it would monitor water usage and thwart illegal urban expansion. The commission would also supply information to citizens on water quality and government programs in the delegacion. The demand for a regional water commission is telling in multiple ways. First, the ejidatarios' call for a regional commission reflected the reality and interconnected nature of urbanization and ecological degradation in Xochimilco. As the ejidatarios pointed out, a site specific intervention like PREX would not truly stop urbanization and the complex hydrological repercussions of irregular settlements from outside the ejido borders. In this way, the regional commission would provide an institutional counterpart to the physical intervention. As the ejidatarios observed, expropriating land and creating a master planned eco-tourism development would not solve the institutional shortcomings that had enabled widespread expansion of irregular settlements. Both politically and ecologically, a regional institution would be necessary to address environmental degradation in Xochimilco.

The call for a regional commission also highlights the absence of local input in the DDF's planning process. The expropriation of the ejidos stunned the ejidatarios, and it is no surprise that they demanded an institutional mechanism to facilitate participation in policy making (Davis, 1999). This does not mean that ejidatarios and ejido institutions were not engaged with politics—indeed they were. Alfonso Gonzalez Martinez of the NGO Grupo de Estudios Ambientales observed that the elders and the Comisaria Ejidal of Xochimilco had historic ties to the PRI and the

CNC (Transcribed Interview with Alfonso Gonzalez Martinez, 2008). But, the clientelistic relationships and the role ejido institutions—particularly the Comisaria Ejidal—played in the PRIs electoral base were opaque and did not convey the diversity of demands from within the ejido. Extant links between political parties favored certain groups within the ejido. These vertical links between particular ejido groups and political parties squelched the divergent objectives of different groups within the ejido by simply favoring the most powerful, politically connected group in the ejido. Conversely—and perhaps optimistically—a regional water commission would shed light on government decisions, provide information to citizens, and establish a transparent link between ejidatarios and the DF government.

4.5 The beginning of citizen mobilization

The original PREX was published in November 1989 and was developed without the input of affected stakeholders—most notably, the ejidatarios whose lands would be expropriated—and as such the plan was widely criticized by ejidatarios, chinamperos, academics, and researchers. As ejidatario Pascual Nieto recalled, “The area was flooded by black waters [aguas negras] as a way to pressure us to sell our lands, but how would we do that when we eat from our lands and we love our lands?” (Huerta, *El Universal*, 1992). This viewpoint was based on the history of environmental degradation in the area; ejidatarios perceived the expansion of irregular settlements, subsequent water contamination, and unabated water extraction as intentional government negligence. Locals felt that the

government had knowingly allowed environmental degradation and destruction of the chinampas despite citizen pressure to mitigate the problem throughout the 1970s and 1980s (Uno Mas Uno, October 5, 1989). Thus, the PREX, which relied on expropriation to accommodate the construction of regulation lagoons and the extension of the Anillo Periferico (the metropolitan ring road), was perceived as a government effort to take the ejidos of Xochimilco and urbanize the area under the guise of “ecological restoration.” The noteworthy presence of foreign capital in similar urban development projects outlined in the PND, such as the restoration of the Centro Historico, and the expropriation of ejidos to create the Santa Fe development, heightened local opposition and portrayed the project as a government sponsored sale of the ejido to foreign developers.

As such, the plan ignited a series of public protests, the creation of citizen oppositions groups, and the organization of public forums in which academics and local landowners collaborated to critique the plan. These efforts proved fruitful, and in 1990, after protests and a series of public meetings attended by Mexico City Mayor Camacho Solis and President of the Republic Carlos Salinas de Gotari, the DDF developed the “Accord of Concertation for the Ecological Rescue of Xochimilco.”

The accord combined alternative plans from ejidatario groups with the original PREX and marks the highpoint of the ecological rescue: organized citizen groups negotiated with the delegacion, DF, and national government in order to excise the role of private capital in the project and reduce the number of total hectares expropriated. Accordingly, the accord received almost unanimous approval from ejidatarios; an estimated 1,000 ejidatario stakeholders signed the document

indicating their approval, support, and willingness to be expropriated and compensated. Despite this high mark in public participation the ejido of Xochimilco was expropriated—a marked departure from their original objective of resisting expropriation while achieving environmental remediation. Conversely, the ejido of San Gregorio secured a court injunction that stymied expropriation for several years.

Part II: Explaining the Processes of Participation

Three factors explain the process of negotiation, cooptation, and realization of a bifurcated outcome, and I present these in the following three sections in a chronological narrative. First, extant vertical connections between citizen groups—namely, ejidatario institutions—and political institutions facilitated cooptation of the ejido of Xochimilco. Second, the development of new vertical connections between citizen groups and political institutions engendered disintegration and fractured residual alliances across citizen groups. And third, unlike the ejido of Xochimilco, the localized ecological degradation and flooding within the ejido of San Gregorio solidified citizen opposition to the PREX.

4.6 Connections to political and social institutions

The contrasting forms of engagement with the DDF demonstrate the different ways in which extant ejido organizations were linked to political parties. San Gregorio's resistance was prolonged because opposition groups were not

intimately linked to political parties or their social institutions. Conversely, Xochimilco's initial resistance was limited as their ejido leaders were linked to the CNC and the PRI, which promoted the PREX. Alfonso Gonzalez Martinez, director of the Grupo de Estudios Ambientales notes:

The ecological rescue plan was a euphemism for expropriating the land in Xochimilco, fracturing power, and dividing local capacity. All of the frontier areas around Mexico City voted for the PRD, the opposition. So, to control this political base, the PRI attempted to dissolve the PRD's hold through "metropolitanizing" politics. The PRI would urbanize the area...In [the ejido of] Xochimilco there was less resistance to this. The Confederacion Nacional de Campesinos and the PRI structure had ties with the elder ejidatarios in the ejido, beginning in 1920 and continuing through 1990. These groups, that controlled Xochimilco, voted for the PRI. (Transcribed Interview with Alfonso Gonzalez Martinez, 2008)

Linked to the PRI through the Comisaria Ejidal of Xochimilco and the Confederacion Nacional de Campesinos (CNC), it is no surprise that resistance in Xochimilco was of limited duration. Even today the CNC continues to be affiliated with the PRI, and functions dually to articulate campesino concerns to PRI politicians while organizing campesinos for political ends. The CNC's organizational powers are crystallized in the September 27, 1989 presentation of PREX at City of Mexico Museum. Attended by PRI politicians Carlos Salinas de Gotari, the President of Mexico, and the Mayor of the Federal District, Camacho Solis, the meeting became the backdrop for citizen protests outside of the museum.

As politicians from the PRI, PRD, and PPS discussed the plan inside the museum, an estimated 500 chinamperos and ejidatarios amassed outside. One group, organized and supported by the PRI and the CNC, supported the project and held up signs that read, "The chinampa as private property!" The opposing faction

was composed of self-organized citizen groups including the Frente Emiliano Zapata para la Defensa del Ejido (The Emiliano Zapata Movement for Defense of the Ejido) and Frente para la Lucha y Defensa del Ejido (The Movement for the Fight and Defense of the Ejido). These protestors were ostensibly supported by the PRD, and held banners that read, "You don't sell history!" and "No private investments!" (Metropoli, Cisneros, 1989), and claimed that of the 3,000 ejidatarios affected by the PREX, only 220 supported the project (Uno Mas Uno, Vargas, 1989). Despite the potential to escalate into a riot, the protest eventually dissipated after several politicians and representatives of the CNC and the PRI were pelted with corncobs (El Nacional, Velazquez and Garcia, 1989).

The ejido of Xochimilco's connections to social and political structures contrast with the links between San Gregorio's citizen groups and political parties. Many groups from San Gregorio initially aligned themselves with PRD representatives to the Federal District Assembly of Representatives (ARDF), including local representative Rocio Huerta (Metropoli, Cisneros, 1989). As both the primary oppositional party to the PRI and the party with an electoral base typically comprised of ejido votes, the PRD and San Gregorio's interests appeared to align. Assembly representatives of the PRD initially supported groups from San Gregorio; however, at the September 27, 1989 presentation of PREX, two PRD ARDF representatives signed an agreement to support the PREX. Commenting on this political reversal, PRD assemblyman Ramon Sosamontes Herreramoro claimed:

...a lack of coordination in this case is my fault. Two of our members signed the accord. But, we've decided to withdraw these signatures and we don't support this document [PREX], we don't support the program presented by

Carlos Salinas de Gotari because it is not clear that this will solve the [ecological] problems in the south. (Rodea and Garcia, *El Nacional*, 1989)

However, Rocio Huerta, the local PRD representative affiliated with San Gregorio, claimed that those who want to sell their land should be able to sell their land, thus reversing her previous position (Uno Mas Uno, Vargas, 1989).

The PRD's blunder altered future alliances between the San Gregorio resistance and political parties. Ejidatario Vicente Morales, recalled:

When Solis made his presentation in the Centro, the first party that joined us was the first party to sign the accord. It was the PRD. We felt betrayed. They closed the doors and did not let us in. Local representative Rocio Huerta signed; she had agreed not to sign and that's why we felt betrayed" (Transcribed Interview with Vicente Morales, 2008).

The incident severed the direct alliance between San Gregorio groups and the PRD. Although this appeared as a setback—San Gregorio groups would have to find new means of engaging the DDF—this incident also provided the rift necessary for citizen groups to solidify alliances given the serendipitous political vacuum.

The incident opened avenues to connect citizen groups to political structures, and the PRI attempted to capitalize on these new opportunities. Genovevo Perez, an ejidatario involved in the resistance recalled that:

Everyone from all parts of society was involved in resisting the project, even from the commercial sector. Above all else it was the PRI that wanted to be involved with the creation of the alternative ejido plan. They wanted to become part of the Defensa del Ejido group, but we would not let them. (Transcribed Interview with Genovevo Perez, 2008)

As the PRI pushed the PREX forward, Vicente Morales recounted, "...there were leaders, PRIsta intermediaries who tricked a lot of people. The intermediaries were not ejidatarios, they were more like wolves, and they received a portion of the

[indemnification] payments as well” (Transcribed Interview with Vicente Morales, 2008). The PRI’s efforts were rebuffed, and local groups reorganized in order to formulate their alternative plan.

The PREX was underway and the formal disclosure of the DDF’s intent to expropriate portions of the ejido of Xochimilco and San Gregorio was published on November 21st, 1989, approximately the same time that ejidatarios of Xochimilco and San Gregorio published the Alternative Ejido Plan for the Ecological Rescue of Xochimilco and Tlauhuac. Although groups within both Xochimilco and San Gregorio would resist the PREX, Xochimilco’s links to the PRI and the CNC would circumscribe their resistance movement. The ejido of Xochimilco was expropriated according to the plans set forth in the PREX; San Gregorio secured a court injunction on May 18, 1990. Although the injunction was overturned in 1992, it staved off expropriation for the intended duration of the PREX (La Jornada, Ballinas, 1993), and paved the way towards the ANP designation the flooded ejido ultimately received.

4.7 Competing ejido groups: Resistance disintegrates

Although citizen groups within San Gregorio were distanced from political incursions, they were not insulated from urban politics. Despite a strong initial resistance, political parties engaged citizen groups into clientelistic networks by capitalizing on divergent interests within the ejidos. As Juan Ayecac of the Frente Zapatista en Defensa del Ejido commented:

At first, they [the DDF] seemed to offer a good deal. But there were two [ejido] leaders who fought with each other. There are two groups, one headed by Fausto Rufino Enriquez, who demands urban parcels of 120 square meters and 30 million pesos for each ejidatario, while Isabel Serralde Godoy demands 15,800 pesos per square meter. But, our group is defined by defending the ejido. (Uno Mas Uno, Navarrete, 1989)

Instead of a neat division between sellers and holdouts, groups across the ejidos were split on how to proceed and negotiate with the government. Even groups that intended to sell their plots and supported the PREX were vying with similar groups who demanded different compensations from the DDF. Following the 1990 Accord, political parties seized upon the heterogeneous interests in the ejidos and fractured their resolve to negotiate outcomes for the entire ejido. Referring to the outcome of PREX in the ejido of Xochimilco, an editorial article in a local newspaper entitled, “Lack of Unity Their Failure” observed that:

The negligence, failure to consolidate, and scandalous corruption that manifested between the leaders and members of groups from the chinampas and ejido, have led toward the rift and stagnation of the campesino and agro-producer sector of Xochimilco, as the very same members of the Committee for the Fight in Defense of the Ejido recognized during meetings with [PRI] delegational authorities (La Tribuna, 1993).

For many ejidatarios, the decision to sell did not even require negotiation. Presented with monetary compensation, few ejidatario landowners could resist the government offers. As Roberto Camacho Piña, an ejidatario, recalled, political parties:

...gained support with money, and they paid everyone. If you fight for something, the government presents economic resources—and everyone needs money. It’s another way of dividing people...People are very politicized. The government has tasked itself with dividing the people, with generating divisions. Politicians aren’t interested in uniting people. They use

people. And people believe less and less in politicians. (Transcribed Interview with Roberto Camacho Piña, 2008)

In this way, opposition to the PREX steadily eroded. Political factions exploited the divergent interests of the ejidatarios to undermine opposition. This strategy was ultimately effective and in 1990 groups such as the Frente Emiliano Zapata para la Defensa del Ejido claimed to represent 300 holdout ejidatarios, even though newspapers reported that only eleven of the 1,700 ejidatarios of San Gregorio continued to resist expropriation. According to lawyers representing the DDF, seven of the eleven holdouts had already cashed their indemnification payments (La Jornada, Ballinas, 1990). Despite similar interests across ejido groups, political incursions ultimately divided the groups' united resistance. Beatriz Canabal of the Universidad Autonoma Metropolitana-Xochimilco, a professor and organizer during the resistance, observed:

A lot of the groups from the resistance no longer exist. And some cannot unite with others. And they have the same discourse: preserve the history and culture of the chinampas. They are divided because of political interests. They compete for financing [from political sources] to complete agricultural projects. (Transcribed Interview with Beatriz Canabal, 2008)

Xochimilco's resistance had subsided in 1990, and by 1992 concerted resistance within San Gregorio was nonexistent. Despite the eventual division and dispersal of San Gregorio's opposition, the persistence of even a handful of holdouts raises larger questions regarding the connections between citizens and government agencies. In fact, prolonged resistance of any kind is puzzling: ecological and political forces coalesced within the ejidos and engendered a contentious atmosphere of rival government agencies, ejidatario groups, colonos, and bureaucrats. In this vein,

ejidatarios were not distanced from a government presence. In reality, they were confronted by multiple state agencies. As such, what factors explain San Gregorio's holdout status despite the proximity between citizens and multiple representatives of government agencies?

4.8 Mobilizing around ecological degradation in San Gregorio

In addition to a multiplicity of government agencies—many of which existed at scales beyond the delegacion of Xochimilco—the ejidos within the delegacion of Xochimilco were also subject to ecological forces beyond their control. The runoff and effluent that flooded the ejido San Gregorio stemmed from deforestation and irregular settlement expansion in nearby Ajusco, located above San Gregorio. Moreover, downtown water consumption engendered over extraction of local water sources and land subsidence in the ejidos of San Gregorio and Xochimilco, making the environmental degradation a visible feature of the cultural landscape. San Gregorio in particular was almost entirely inundated by effluent, and the visible degradation set it apart from the same gamut of political and ecological forces acting on the ejido Xochimilco. This ecological distinction—flooding wrought by political neglect—explains why San Gregorians resisted the PREX longer than the Xochimilcos. Ejidatario Vicente Morales explained the situation in San Gregorio:

...you almost could not plant anything because you were in the same place that the government had inundated with aguas negras. A large part was inundated, inundated by the government. If the government had created a plan to help the campesino, that would be another thing. However, the only thing they did was expropriate the ejido to control the land subsidence and create an artificial lagoon, and call it an ecological project. (Transcribed Interview with Vicente Morales, 2008)

Despite the proximity of government agencies, ejidatarios remained skeptical and disenfranchised. Paradoxically, the flooding—the unintended result of an electoral strategy—was an ever-present reminder of the distance between ejidatarios and policy makers.

The distance between ejidatarios of San Gregorio and political agendas manifested in social and spatial dimensions: institutions, culture, class, and geography (Davis, 1999). Whereas the PREX intended to redress the environmental neglect that had occurred for decades, it also unearthed and crystallized exactly why the ejidatarios were wary of large political projects. Institutionally, ejidatarios felt that they had been alienated from the planning process. “The government plan for ecological rescue of the area was elaborated behind the backs of the locals and the ejidatarios!” Vicente Morales told journalists in 1989 (*Uno Mas Uno*, October 5, 1989). In terms of culture and class, the ejidatarios viewed the project as an urbanizing force that was incommensurate with their agrarian identity and history of land stewardship. Ejidatario Jose Genovevo Perez called the PREX, “...an elitist and urbanizing project. A Disneyland!” (Transcribed Interview with Jose Genovevo Perez, 2008). Geographically, the ejidatarios were proximal to political representatives of the state—the delegacion of Xochimilco is within the DF and multiple urban, ecological, and agrarian agencies interacted with ejidatrios regularly. However, the flooding of the ejido remained the symbolic testament to political neglect and was spatial proof that the ejidatarios were indeed distanced from the multifarious government presence in the delegacion. Vicente Morales recalled:

...the elections for the Republic were near, and for Camacho Solis, the head of the government [of the DF], the project was an offer to the citizenry and his method of winning the presidential elections, through ecological projects...The politicians never take into account the campesinos, the countryside always ends up being practically abandoned. (Transcribed Interview with Vicente Morales, 2008)

As such, the PRI's quest for votes and political control of irregular settlements boomeranged in San Gregorio. For ejidatarios, flooding and environmental degradation proved the government's negligence. Reified in the degraded landscape, the flooded ejido of San Gregorio was a reminder of politicians with ulterior motives. Moreover, it served as a unifying factor, thus explaining why ejidatarios from San Gregorio were more resistant to political incursions than their Xochimilco counterparts, and why they continued to resist the PREX after the 1990 Accord.

The outcome of the PREX also illustrates the disaggregate ways citizens engage representatives of the state given the uneven ecological conditions engendered by unplanned urbanization. In reality, the citizens of the ejidos of Xochimilco and San Greogorio had heterogeneous interests. Similarly, the political presence in the ejidos spanned clientelist political agendas to genuine efforts for environmental remediation. In fact, multiple experts noted that even though the proposed lagoons were unpopular, they were necessary in order to control runoff and water contamination (Transcribed Interview with Jorge Legoretta, 2008; Transcribed Interview with Beatriz Canabal, 2008). The outcome of the PREX thus indicates that citizen participation in politics and planning must navigate the heterogeneous stakeholders within a community. Indeed, the mixed outcome of

PREX reveals what perfunctory public participation delivers: protests, high bureaucratic transaction costs, and squandered public investments in lengthy urban development projects.

4.9 Summary of citizen resistance

Citizen groups in the ejidos of San Gregorio and Xochimilco mobilized and resisted the PREX from 1989 to 1992, but their mobilization delivered divergent outcomes. Throughout the course of the resistance, three factors explain the two processes of mobilization and participation in the PREX.

First, groups within the ejido of Xochimilco had longstanding historical ties to the CNC and the PRI. These connections served to mobilize support for the PREX—crystallized in the Museum of the City of Mexico protests in 1989—and facilitated cooptation of the majority of the interests and groups. As such, political links ensured a short-lived resistance in the ejido of Xochimilco. Conversely, the PRD's support for PREX at the City of Mexico Museum meeting surprised ejidatarios, who had previously counted on PRD support. This snafu severed the existing links between political parties and San Gregorio groups, thereby ensuring a degree of political autonomy for the citizen resistance within San Gregorio.

The second factor that explains waning participation outside of established political channels centers on the disintegration of the citizen groups after the 1990 Accord and continuing through 1992. Following the protests at the City of Mexico Museum in 1989, political parties once again began to initiate contact with citizen groups. Paralleling a familiar pattern of co-optation, political leaders disintegrated

the remaining citizen groups by playing on the heterogeneous interests within the ejidos. Political parties primarily relied on payments to group leaders in order to secure their compliance with the PREX. Some ejidatarios wanted to resist expropriation while others wanted indemnification payments, however, the gradual dissolution of citizen groups through co-optation of their leaders ensured that citizen groups were aligned vertically with political parties instead of horizontally with each other.

But, given the fractured alliances of citizen groups, the holdout ejidatarios in San Gregorio are somewhat of a puzzle. They refused to be co-opted and resisted the expropriation despite dwindling support from other ejidatarios. Their continued resistance can be explained by the unique intersection of politics and ecology within the ejido of San Gregorio. The flooding and inundation wrought by political neglect—politicians had permitted unabated water extraction and expansion of irregular settlements in adjacent areas—was a reminder of the difference between metropolitan politics and ejidatario values.

These three processes of mobilization and participation in PREX engendered a surprising outcome: expropriation in the ejido of Xochimilco led to environmental remediation while resistance in San Gregorio failed to remediate environmental damage from inundation. Faced with the high cost of environmental remediation—expropriation—the project cannot be considered entirely successful for the government planners or the citizens. The following chapter addresses the aftermath of the PREX and clarifies which factors led to the bifurcated and paradoxical ecological outcome.

Chapter 5: The aftermath

5.1 Chapter Overview

In this chapter I present the environmental outcomes in the two ejidos and explain what approaches the DDF planners could have employed to deliver a successful outcome in which comprehensive ecological remediation would not have to come at the cost of ejidatario disenfranchisement and resistance. Section 5.2 covers the specifics of the environmental outcome and the effects of the PREX on community groups. Section 5.3 outlines how planners can connect citizen participation to environmental planning, and section 5.4 advocates a regional approach in environmental planning in urbanizing areas. I summarize my findings and recommendations in section 5.5.

5.2 The veneer of a successful project

After tumultuous negotiations between the DDF and citizen groups, the PREX neared completion in 1993. On February 19, 1993 a communiqué from the Delegacion of Xochimilco declared:

...the fundamental efforts that the authorities and the community realized in the jurisdiction during the last four years reawakened the agriculture, tourism, commerce, and ancestral activities of the delegacion, the promissory future of the region will convert into a tangible reality...the just reclamation of Xochimilco by the government of the Republic, through the DDF, crystallizes an integral rescue for the jurisdiction, will be a reality, and was an undoubtedly beneficial project... (Nota Informativa, Coordinacion de Comunicacion Social, Delegacion Politica de Xochimilco, February 19, 1993)

Superficially PREX had achieved most of its goals: water treatment plants in nearby Iztapalapa and San Luis Tlaxtiatemalco were upgraded; a flower market and ecological park were created on either side of the new ring road on the former ejido of Xochimilco; some ejidatarios received new, serviced urban plots, and the periferico ring road expanded (without concessions to private developers) (See figure 6, p. 60). These new land uses and increased water sanitation delivered marginal improvements in the environmental quality of the delegacion and reduced public health concerns (Martinez, 1995; Martinez, 2002; Wirth, 1997).

The ejido of San Gregorio also witnessed changes. Once the federal court injunction had been overturned, the DDF had attempted to drain approximately 77 hectares of flooded ejido land (Nota Informativa, Coordinacion de Comunicacion Social, Delegacion Politica de Xochimilco, February 19, 1993: 7). Subsequently, on May 7, 1992 the ejido of San Gregorio was designated as an ANP by presidential decree (Gaceta Oficial del DF: 2005). Although this designation thwarted any (legal) urban development in the area, it also formalized the latent stalemate between community groups and government agencies. As such, the ejido of San Gregorio remained subject to seasonal floods and was agriculturally useless.

In 2002, Alfonso Gonzalez Martinez published a summary of the achievements and limits of citizen mobilization in PREX, noting, "There have been some Project evaluation efforts, but they were done in such a fragmented way that it is difficult, even twelve years after the Project's beginning, to establish with accuracy what have been the successes, impacts, and limits of the Project" (Martinez, 2002: 2). In part, discrepancies arose because of two different project

objectives. Following citizen mobilization and the 1990 Accord, government planners were intent on completing the project and delivering an environmental solution, and this goal was largely informed by the PRI's need to revitalize their waning popularity. Citizen groups in San Gregorio, however, still wanted institutional mechanisms to address water contamination, land subsidence, and waning agricultural production, all of which required consideration of factors that extended beyond the borders of the ejido, and a more thorough project than originally envisioned by DDF planners.

The differences between the government intervention and citizen demands are crystallized in President Salinas de Gotari's announcement at the highly publicized 1993 opening of the Xochimilco Ecological Park located on the former ejido of Xochimilco. Among other achievements, Salinas announced that 3,000 hectares of chinampas and canals had been protected, 1,200 hectares of new chinampas had been planted, 500,000 more residents were connected to sewerage, and there were 20,000 fewer domestic discharges of effluent into the canals (Wirth, 1997: 10). Nonetheless, consensus among government agencies, chinamperos, ejidatarios, and experts contradicts these official statements. A 1996 report by the federal Commission of Natural Resources indicated that the delegacion of Xochimilco's ecological zones were the sites of the highest rates of irregular settlement, water contamination persisted as raw sewage was pumped into canals leading to phosphate contamination and eutrophication, land subsidence continued at a rate of 40cm a year, and annual rainfall declined by 30 percent because of peri-urban deforestation in the Valley of Mexico (Wirth, 1997: 11; Aguilar, 2008;

Transcribed Interview with Government Biologist (anonymous), 2008). Given the site-specific focus of the PREX, only 160 hectares within the ecological park had been protected.

In addition to lingering environmental contamination, political incursions and co-optation had stymied community environmental management. In Xochimilco, expropriations and indemnification payments splintered any remaining solidarity in the ejido. Community demands—enabled and dependent upon ejido communal property—were replaced with individual links to the DDF. As such, the ejidatarios of Xochimilco, who received payments and witnessed improvements in water quality in the area, were nonetheless completely divorced from their land.

Beatriz Canabal of the Universidad Autonoma Metropolitana-Xochimilco observed:

The periferico divided everything. Now on one side there is the ecological park and the public park, and on the other side there is the plant and flower market...The people do not feel like the space is theirs. Everything is rented. They lost control of the area. (Transcribed Interview with Beatriz Canabal, 2008)

Similarly, San Gregorio groups, despite their attempt to maintain political autonomy, weakened. In addition to the gradual dissolution of solidarity—primarily resulting from co-optation and payments from political parties—even the most adamant ejidatarios were exhausted by 1993. Ejidatario Vicente Morales recalled:

You almost need something for the people to resist so that they can unite...People do not unite because they are apathetic, because the government doesn't obey the law. The public does not want to participate any more in politics. So, there are very few people who want to get involved with politics and fight. (Transcribed Interview with Vicente Morales, 2008)

Ejidatarios in San Gregorio had relied on media outlets, NGOs, and academics to help defend the ejido and publicize their discontent. However, political participation

outside of established channels had not delivered ecologically optimal outcomes in San Gregorio. According to the planning literature (Castells, 1983; Friedman 1987; Friedman, 2003; Healey, 2003), the ejidatarios of San Gregorio did everything “right”: they formed community organizations through grassroots mobilization, they conferred with experts, NGOs, and academics to bolster their plan and raise public awareness of their plight, they publicized their discontent through various media, and they maintained a degree of political autonomy, thereby resisting cooptation. In this sense, the ecological outcome of San Gregorio’s resistance was unforeseen—undoubtedly, citizens mobilized and resisted the PREX because they hoped to achieve environmental remediation *and* avoid expropriation.

This process of political participation also diminished ejidatarios’ resolve and stamina. Current planning literature advocates the importance of civil society’s participation in politics in order to achieve democratically constructed outcomes. (Healey, 2003; Fainstein and Campbell, 2003; Friedmann, 2003; Friedmann, 1987; Fainstein, 2000). But, PREX revealed that citizen participation in opaque government projects was both laborious and thwarted by established political institutions. Indeed, participation for the sake of being democratic is an incredible onus.

The mixed success of the PREX therefore raises questions regarding social movements and citizen participation in environmental planning projects. How do citizen groups address political and ecological forces that emanate from beyond their immediate territorial base? How can government planners engage citizen demands and still deliver successful project outcomes? And, given the San Gregorio

groups' mobilization and political autonomy, why were citizen groups unable to transform the area and achieve environmental remediation pursuant to their alternative plan?

5.3 Connecting citizen participation to ecological outcomes

Social movements must balance political autonomy with integration into existing political structures in order to achieve their goals (Castells, 1983: 322). The PREX demonstrates that citizen mobilization and subsequent engagement was particularly difficult in Mexico City, where the PRI historically co-opted citizen movements for political control. Indeed, even when ejidatarios from San Gregorio were able to maintain a degree of political autonomy they were still unable to achieve their goal of environmental remediation in the ejido of San Gregorio. If anything, their political autonomy produced a snafu, as the ejido of San Gregorio remains inundated with contaminated water. This paradoxical outcome challenges the argument—articulated below by Castells—that processes of participation in and of themselves are the key components of social movements:

The actors of the urban movements are the urban movements themselves, since we have defined movements by the goals they set up for themselves. The movements become social actors by being engaged in a mobilization towards an urban goal which is itself linked to the general struggle over the continuous restructuring of society. (Castells, 1983: 320)

Castells correctly asserts that social groups continuously renegotiate the meaning and form of the city. However, if social movements are to be successful, even small outcomes should be accorded greater value. In the PREX, public participation was

more of a nostrum than a solution—the negotiated 1990 Accord did not lead to environmental remediation, and San Gregorianos continued resisting the PREX. Citizen groups in San Gregorio did not mobilize to transform society or change the political structures within Mexico City, their goal was to avoid expropriation while remediating their ejido, and their tactics were indicative of a political structure unwilling to adjust to new forms of citizen participation. Here, the outcome more than the process of participation would have engendered ecologically and socially optimal land uses within the ejido. Even though citizen groups exhibited noteworthy mobilization and negotiation efforts, the outcome of citizen mobilizations was suboptimal.

In order to link citizen mobilization to intended outcomes, we must consider the basis of citizen mobilization—territory—and how this localized resistance can contend with multiple scales of government and complex ecological factors including hydrology, runoff, and the regional consequences of changes in land cover from agricultural to urban uses. The interplay between locally organized groups and metropolitan political and ecological forces demands a reconsideration of space. Citizen groups could engage political and ecological forces that are beyond their control through what Friedmann (2003) calls “spaces of participation.” These new spaces of participation can connect organized civil society to public decision-making:

...a space for participation must be found for a whole new set of actors in addition to the nation state and capital. Regions, cities, and neighborhoods are the places where meaningful citizen participation can take place. It is far less likely to occur at superordinate levels. (Friedmann, 2003: 76)

However, this accurate and hopeful view of civil society lacks specificity, and it implies a general outcome: democratic participation and enhanced local representation in political decision-making. In the PREX case, however, the patchwork of political and ecological factors provided an opportunity for a new institution—a clearly defined space of participation.

The 1989 Plan Alternativo Ejidal para Xochimilco y Tlahuac published in 1989 by the ejidatarios of Xochimilco and San Gregorio proposed a Regional Watershed Commission. This institution was the geopolitical counterpart to the environmental engineering interventions in the PREX. Such an institution would not only ensure transparency and oversight—the institution would facilitate dialogue between government actors and ejidatarios and chinamperos—it would also address the multi-scalar political and ecological forces that coalesced within the ejidos of Xochimilco. Accordingly, in order to avoid the negative environmental externalities engendered by irregular settlements and political clientelism, a watershed-scale institution would have been an appropriate component in the PREX. The success of citizen mobilizations in urban planning projects is therefore reflected in both the physical space of a site and (new) pertinent institutions capable of governing that space.

An ecological/political institution that extends beyond the ejidos of Xochimilco and San Gregorio would also be appropriate because it serves a clear purpose. Instead of an open call for greater citizen participation, local democracy, or more responsive government, a political/ecological institution implies these concepts, but is explicitly tasked with information sharing, ecological monitoring,

and oversight of water sanitation projects. Although processes of representation are inferred in the institution, the institution in its own right leads to a well-defined, realizable outcome (Fainstein and Hirst, 1994: 30). The outcome of a project would remain fundamentally spatial: local transformation of the built environment would dovetail with the establishment of a regional institution. In this capacity, the local, built environment is inextricably linked to the political and ecological forces that bear upon it. Citizen mobilization leads to optimal outcomes when planners and projects address both physical space and geopolitical space in concert.

Social movements confront a catch-22: they must engage political structures but cannot be co-opted or institutionalized. The outcome of the ejido of Xochimilco reflects this catch-22. Although environmentally remediated, the ejidatarios of Xochimilco are now completely displaced and dissociated from their ancestral land and community institutions. The proposed Regional Water Commission is a potential solution to the broad forces social movements confront, and how government planners can engage citizen organizations. The key element I have focused on, and the key element that could better link citizen participation to a successful ecological outcome, is the role that this regional institution would achieve as a form of directed and clearly articulated participation. It implies local participation, but its purview is regional and its purpose is discrete.

5.4 Regional institutions and new political channels

The citizen mobilizations in the PREX reflect the exasperating position of citizen groups vis-à-vis established political structures. The emergence of civil

society actors requires new institutions capable of incorporating these new demands into public decision-making (Fainstein, 2000; Fainstein, 2005; Fainstein and Hirst, 1994). Based on the bifurcated outcome in the PREX, in which marginal environmental remediation came at a high social cost—displacement and expropriation—and neither the ejidatarios of Xochimilo or San Gregorio achieved their goals completely, it is necessary to focus planning efforts on parlaying citizen mobilization into discrete outcomes. In the PREX, this very well could have been achieved through the creation of a regional institution—a space of participation—that actually pertained to physical space. This institution would bridge physical transformation of the ejidos with governance of the area, and might have delivered a two-fold solution.

First, creation of the Regional Watershed Commission would not only have incorporated ejidatario demands into the planning process, it also would have ensured ejidatario input into the future administration of the area. Given the need to expropriate the ejidos to facilitate the creation of the regulation lagoons, a regional institution would transfer some of the administrative heft of the Comisaria Ejidal into the new social and spatial arrangement of the ejidos. The new institution could attempt to fill the social and political void created by the dissolution of the Comisaria Ejidal. To this end, expropriation would not obliterate ejidatario participation in local politics; instead, it would create a new channel for local decision-making pertaining to the area.

Keeping the technical solution—the creation of artificial lagoons—in mind, a Regional Watershed Commission would have had the second benefit of facilitating

implementation of a technocratic, but necessary, planning intervention. Ejidatarios and local chinampero landowners resisted the PREX on the basis of expropriations, which in turn, would dissolve their control of the area. The Regional Watershed Commission would therefore provide a possible compromise: local landowners would not be entirely divorced from the administration of the areas following expropriation. By creating an institution that would allow for future participation after expropriations, Mexico City planners may have been better positioned to implement the necessary engineering solutions to mitigate environmental degradation in the ejidos.

5.5 Summary

The Mexico City government has historically expropriated ejidos for the benefit of private industry, to appease middle class homeowners, and to secure electoral bases in irregular settlements. In all of these cases, private interests trump the constitutional rights of ejido landowners (Ward, 1990; Cymet, 1992; Varley, 1993). In this context, we can see why the expropriations in the PREX were polemical. Despite this historically, politically, and ecologically complex situation, the PREX case outlines some methods for bridging citizen mobilization with urban planning outcomes. I have used the regional institution proposed in the Alternative Plan (1989), to demonstrate how to link localized resistance to metropolitan politics, how to bridge transformation of the built environment with the geopolitics that govern the built environment, and how to parlay citizen participation into technical environmental planning projects. Because the ejido provided a basis for

community organization and a degree of political clout, it is no surprise that ejidatarios resisted expropriation. To this end, I emphasize the Regional Watershed Commission as an opportunity for Mexico City planners to ameliorate ejidatario fears. Expropriation would not eradicate local political representation; instead, public input could be transferred to a new institution with a local purview and discrete environmental objectives.

Chapter 6: Conclusion

Citizen resistance to the PREX evidenced a complex amalgam of civil, government, and ecological forces, many of which extended beyond the boundaries of the ejidos in the delegacion of Xochimilco. Bearing all these factors in mind, this thesis still aims to reinforce the relevance of the outcome—not just the process of citizen participation—in environmental planning projects in metropolitan areas with decentralized decision-making bodies. Successful outcomes are just as important as citizen participation. If anything, a successful outcome from a small, localized project, such as PREX, can serve as a catalyst for future citizen engagement in politics.

In examining citizen mobilization in PREX, I uncovered two puzzling results: Why did citizen resistance persist after the 1990 Accord despite the proximity of government agencies to the urban ejidos of Xochimilco and San Gregorio? And, why did a sustained citizen mobilization fail to deliver environmental remediation in San Gregorio—why were the ejidatarios forced to choose between continued environmental degradation or expropriation?

First, citizen resistance to PREX is surprising given the historical omnipresence of government representatives acting in the urban ejidos of San Gregorio and Xochimilco. This multi-pronged presence limited the potential for unified citizen action in Xochimilco, and political incursions after 1990 explain the gradual dissolution of citizen resistance in San Gregorio.

The distance framework (Davis, 1999) explains why, given this strong government presence, citizen groups in San Gregorio maintained political autonomy and avoided cooptation, unlike their Xochimilco counterparts. San Gregorians maintained a degree of political autonomy because of the flooding in their ejido. The flooding was wrought by political neglect—the politics of urbanization in nearby Ajusco—and became a visible testament to the distance between ejidatarios and politicians. Flooding was an ecological and political externality that politicians had not accounted for, and this solidified resistance in San Gregorio. The ejido of San Gregorio was only superficially proximal to government, but the reality of environmental degradation within the ejido illustrated the DDF's continued neglect of San Gregorio's water, agricultural, and land subsidence problems.

San Gregorio's prolonged resistance also illustrates the intertwined nature of politics and ecology in the peri-urban social movement. The ejidatarios' objectives had both political and ecological implications for the ejido and future environmental management of the area. Accordingly, the PREX, which focused on remediating specific, local environmental issues, was unequipped to deal with the larger ecological and political context that permitted unfettered urbanization and produced ecological degradation in the first place.

The suboptimal ecological outcome of the ejido of San Gregorio is the second paradox I present in this thesis. Citizens developed an seemingly "good" social movement: they resisted the PREX, mobilized, organized into groups, sought alternative expert opinions, and pursued new channels of participation outside of the PRI's purview. However, the citizen movements of San Gregorio were unable to

achieve environmental remediation while avoiding expropriation. Conversely, the former ejido of Xochimilco was expropriated and witnessed improvements in ecological conditions, but at the cost of their ancestral land. San Gregorianos were not able to achieve environmental remediation *and* avoid expropriation because they could not connect their mobilization to either a lasting physical or institutional solution. San Gregorianos were faced with an outcome that they did not anticipate, and this unanticipated outcome demonstrates how city planners must parlay citizen mobilizations into urban planning projects. Indeed, a successful outcome would have delivered environmental remediation while avoiding disenfranchisement and alienation of local stakeholders.

To achieve this compromise I propose a reconsideration of ecology in community organizing and urban planning. As articulated in Chapter 5, physical planning—the artificial lagoons in the PREX case—must be coordinated with geopolitical interventions. A new institution with a regional purview and local environmental oversight may have effectively maintained extant forms of ejido political representation. With complex ecological and political factors acting on the ejidos, a regional approach is necessary. Moreover, given the history of expropriations throughout Mexico City, ensuring continued political representation could have assuaged fears that the PREX would disband ejidatarios.

Environmental planning and interventions in urbanizing areas

Although it is difficult to distill the concepts and arguments presented in this thesis, I nonetheless summarize my findings below.

Environmental planning in urbanizing locations will require both physical and institutional interventions. An analytical framework for working in such conditions includes:

- Assessment of the multi-scalar political and ecological forces that coalesce in the given locale. These forces include: federal, municipal, and local government bodies and agencies that may overlap and conflict; the hydrological watershed boundaries of an area vis-à-vis metropolitan water consumption, production of wastewater, and water infrastructure; and extant community institutions and their connections to government agencies and bodies.

The externalities engendered by irregular settlements, for example in Ajusco, demonstrate the need to combine politics and ecology in new institutions; effective environmental remediation cannot be achieved through physical interventions alone.

- Consideration of a regional institution that bridges the local, built environment with the broader political and ecological forces that bear upon that locale. This connects territorially based citizen organizations with metropolitan governments, and does not succumb to myopic environmental planning in metropolitan areas with decentralized decision-making.
- Enhancement, or possibly substitution, of extant informal and formal citizen institutions through the creation of a new political/ecological institution at a regional scale. Urbanization reorders land uses, thus transforming the social and political organization of a place. Keeping this in mind, new institutions that link extant community institutions to governance of areas witnessing impending changes may diminish citizen opposition to urban growth and environmental planning interventions.

Remaining questions

In this thesis I focus on a specific location in both temporal and spatial dimensions. This narrow focus brings to light the complexity of urbanization and environmental planning in a manageable way. Nonetheless, it also raises an overarching question. Returning to the utility of process in social movements, Castells (1983) contends that urban social movements that do not deliver structural

change are not truly urban social movements so much as, what he calls, “collective consumption.” Instead of relying solely on this definition, I instead presented this thesis with an understanding of citizen resistance to PREX as a social movement, even though it did not produce a structural transformation. But, if we consider PREX in a broader context, could the citizen resistance and mobilization be considered part of larger societal change?

In the late 1980s the PRI’s control of the Federal District was waning. In addition to citizen discontent, the overall political structure was in flux. In 1988 the Assembly of the Federal District Representatives (ARDF) was granted more weight in metropolitan politics, thus enhancing the presence of elected representatives in the city’s public decision-making. In 1995 Mexico City citizens were able to vote for their mayor, making the city markedly more democratic. And, in the 2000 national presidential elections, the PRI was defeated for the first time by the opposition party, the PAN (Partido de Accion Nacional, National Action Party) (Davis, 2002). It is worth asking if citizen resistance in PREX formed one of the many instances of citizen mobilization and demands for greater transparency in public decision-making that, taken together, formed the urban social movement that facilitated Mexico City’s recent political restructuring.

Bibliography

Books and Articles

Aguilar, A., P. Ward and C. Smith Sr (2003) Globalization, regional development, and mega-city expansion in Latin America: Analyzing Mexico City's peri-urban hinterland. *Cities* 20, 3-21.

Azuela, A. (1989) *La Ciudad, La Propiedad Privada y el Derecho*. El Colegio de Mexico, Centro de Estudios Demograficos y de Desarrollo Urbano, Mexico City.

Castells, M. (1983) *The city and the grassroots*. University of California Press Berkeley.

Cymet, D. (1992) From Ejido to Metropolis, Another Path. An Evaluation on Ejido Property Rights and Informal Land Development in Mexico City. *AMERICAN UNIVERSITY STUDIES: SER XXI, REGIONAL STUDIES* 6.

Davis, D.E. (2007) Conflict, Cooperation, Convergence: Globalization and the Politics of Downtown Development in Mexico City. *Politics and Globalization* 15, 139-74.

Davis, D.E. (2002) Mexico City: The Local-National Dynamics of Democratization. In David J. Myers and Harold A. Dietz (eds.), *Capital City Politics in Latin America*, Lynne Rienner Publishers, Boulder, CO

Davis, D.E. (1999) The Power of Distance: Re-Theorizing Social Movements in Latin America. *Theory and Society* 28, 585-638.

Davis, D.E. (1994) *Urban leviathan: Mexico City in the twentieth century*. Temple University Press, Philadelphia.

Demsetz, H. (2002) Toward a Theory of Property Law. In Carol M. Rose, Robert C. Ellickson, Bruce A. Ackerman (eds.), *Perspectives on Property Law*, Aspen Law and Business, New York.

Diaz, R. (2008) City Growth and Community-Owned Land in Mexico City. Massachusetts Institute of Technology, Cambridge, MA. (unpublished master's thesis)

Fainstein, S. (2005) Planning theory and the city. *Journal of Planning Education and Research* 25, 121.

Fainstein, S. (2000) New directions in planning theory. *Urban affairs review* 35, 451.

Fainstein, S. and C. Hirst (1994) Urban social movements. *Working Paper: Center for Urban Policy and Research*. Rutgers University, New Jersey.

Fischer, F. (2003) Risk Assessment and Environmental Crisis: Toward an Integration of Science and Participation. In S. Campbell and S. Fainstein (eds.), *Readings in planning theory*, Blackwell Publishers, Malden, MA.

Friedmann, J. (2003) Toward a Non-Euclidean Mode of Planning. In S. Campbell and S. Fainstein (eds.), *Readings in planning theory*, Blackwell Publishers, Malden, MA.

Friedmann, J. (1987) *Planning in the public domain: From knowledge to action*. Princeton University Press, Princeton.

Hardin, G. (2002) The Tragedy of the Commons. In Carol M. Rose, Robert C. Ellickson, Bruce A. Ackerman (ed.), *Perspectives on Property Law*, Aspen Law and Business, New York.

Healey, P. (2003) The communicative turn in planning theory and its implications for spatial strategy formation. In S. Campbell and S. Fainstein (eds.), *Readings in planning theory*, Blackwell Publishers, Malden, MA.

Jones, G. (2000) Between a Rock and a Hard Place: Institutional reform and the performance of land privatization in peri-urban Mexico. In A. Zoomers and G.v.d. Haar (eds.), *Current land policy in Latin America: Regulating land tenure under neo-liberalism*, KIT Publishers, Frankfurt and Madrid.

Legorreta, J. (1994) *Efectos Ambientales de la Expansion de la Ciudad de Mexico*. Centro de Ecologia y Desarrollo, Mexico City.

Martinez, A.G. (2002) Reflexion sobre logros y limitaciones de algunos aspectos relevantes del plan de Rescate Integral de Xochimilco. Grupo de Estudios Ambientales, AC, Mexico City.

Martinez, A.G. (1997) The Concertation Agreement in Xochimilco, Mexico: a case of social and ecological dispute. In G.M.a.W. Hamacher (eds.), *Lessons Learned in Environmental Mediation: Practical Experiences in North and South*, International Academy of the Environment, Geneva.

Oberai, A. (1993) *Population growth, employment, and poverty in Third-World mega-cities: analytical and policy issues*. St. Martin's Press, New York.

Ostrom, E. (2009) Design Principles of Robust Property Rights Institutions: What Have We Learned? In Gregory K. Ingram and Yu-Hung Hong (eds.), *Property Rights and Land Policies*, Lincoln Institute of Land Policy Press, Cambridge, MA.

Pezzoli, K. (2000) *Human settlements and planning for ecological sustainability: the case of Mexico City*. MIT Press, Cambridge, MA.

Schteingart, M. and C. Cruz (2005) *Expansión urbana, sociedad y ambiente: El caso de la Ciudad de México*. El Colegio de México, Centro de Estudios Demográficos, Urbanos y Ambientales, Mexico City.

Varley, A. (1993) Clientelism or Technocracy? The Politics of Urban Land Regularization. In N. Harvey (ed.), *Mexico: Dilemmas of Transition*, British Academic Press, London.

Varley, A. (1985) Urbanization and Agrarian Law: The Case of Mexico City. *Bulletin of Latin American Research* 4, 1-16.

Ward, P. (1990) *Mexico City: The production and reproduction of an urban environment*. Belhaven Press, London.

Wirth, C.J. (1997) The Governmental Response to Environmental Degradation in the Xochimilco Ecological Zone of Mexico City. *Meeting of the Latin American Studies Association*, Guadalajara, Mexico.

Newspaper Articles

Aguilar, F. (1990) Acaban Autoridades con el Lago de Xochimilco por su Programa de Rescate, Segun el Frente Emiliano Zapata. *Sol de Mexico* Mexico DF.

Arias, J.Q. (1990) 500 mil millones de pesos de recursos propios al Plan de Rescate de Xochimilco. *Uno Mas Uno*, Mexico DF.

Ballinas, V. (1993) Beneficia a mas de 7 mil familias el Proyecto Ecologico de Xochimilco. *La Jornada*, Mexico DF.

Ballinas, V. (1990) Aplazara el DDF labores de rescate ecologico en Xochimilco. *La Jornada*, Mexico DF.

Ballinas, V. (1990) Instalado, el consejo para el rescate de Xochimilco. *La Jornada*, Mexico DF.

Ballinas, V. (1989) Ejidatarios, de acuerdo con el rescate: Juan Elizondo. *La Jornada*, Mexico DF.

Barera, U. (1990) Mantienen su Negativa los Ejidatarios de San Gregorio. *Ovaciones*, Mexico DF.

Cambran, A.M. (1990) En desacuerdo con el Plan de Rescate Ecologico. *Ovaciones*, Mexico DF.

Cisneros, E.R. (1989) Menudearon mazorcas y gritos entre campesinos. *Metropoli*, Mexico

DF.

Cruz, P.E. (1990) Hicieron firmar hasta los muertos, acuerdo para rescate de Xochimilco. *Tribuna*, Mexico DF.

Diaz, A. (1993) Fue un "as de oro" del DDF el plan de rescate ecologico de Xochimilco. *El Universal*, Mexico DF.

Eliseo, P.C. (1993) Listo al 100% el rescate ecologico de Xochimilco. *Tribuna*, Mexico DF.

Eliseo, P.C. (1992) Reconoce la comunidad xochimilquense las acciones ecologicas en la entidad. *Tribuna*, Mexico DF.

Eliseo, P.C. (1990) Violan amparo contra el Plan de Rescate Ecologico. *Tribuna*, Mexico DF.

Garcia, A.V.a.J. (1989) Un grupo de campesinos rechazan el Plan Ecologico de Xochimilco. *El Nacional*, Mexico DF.

Garcia, F.R.a.J. (1989) PPS and PRD no avalan el Plan de Rescate Ecologico de Xochimilco. *El Nacional*, Mexico DF.

Gonzalez, V. (1993) Termina manana la remodelacion de 2,657 Ha ecologicas en Xochimilco. *El Universal*, Mexico DF.

Huerta, L.S. (1992) Es urgente rescatar Xochimilco. *El Universal*, Mexico DF.

L., J.R. (1992) Puede acelerar la degradacion, el rescate de Xochimilco, denuncian. *El Universal*, Mexico DF.

Martin Vargas, V.T., Humberto Rios (1989) 400 mil millones, inversion inicial para salvar Xochimilco. *Uno Mas Uno*, Mexico DF.

Moraflones, A. (1994) Situacion de Desastre Ecologico de Xochimilco. *La Prensa*, Mexico DF.

Navarrete, H.R. (1989) Asegura agrupacion contar con plan alternativo de rescate de Xochimilco. *Uno Mas Uno*, Mexico DF.

Serrano, I.M. (1994) El parque ecologico Xochimilco ya no recibira mas subsidios. *El Heraldo de Mexico*, Mexico DF.

Torre, G.Q.d.l. (1991) Xochimilco: de la barbarie y vandalismo ecologico, a la responsabilidad ambiental. *El Nacional*, Mexico DF.

Torres, V. (1989) Impugna la oposicion en la ARDF el programa de rescate. *Uno Mas Uno*, Mexico DF.

Urrutia, A. (1991) Firma Camacho Solis acuerdo con ejidatarios de Xochimilco. *La Jornada*, Mexico DF.

Vazquez, T.N. (1989) Para quien se rescatara Xochimilco. *Uno Mas Uno*, Mexico DF.

Newspaper Editorial Clips

(1993) Falta de Unidad Su Fracaso. *Tribuna*, Mexico DF.

(1992) Detenido, el cinturon ecologico metropolitano. *Ovaciones*, Mexico DF.

(1992) Chinampas Contaminadas: El plan de rescate no ha podido contener el avance de la mancha urbana. *Ovaciones*, Mexico DF.

(1992) No garantiza el Plan de Rescate Ecologico la preservacion del ambiente xochimilca. *Tribuna*, Mexico DF.

(1991) Avance de 80% al programa de rescate de Xochimilco. *Uno Mas Uno*, Mexico DF.

(1991) Demandan ejidatarios de Xochimilco a Camacho se modifique el plan de rescate de la zona. *El Herald*, Mexico DF.

(1991) Interponen recurso de rescision los ejidatarios de Xochimilco. *Uno Mas Uno*, Mexico DF.

(1991) Piden ejidatarios a Carlos Salinas que garantice el rescate ecologico. *Tribuna*, Mexico DF.

(1991) Piden Ejidatarios de San Gregorio la Restitucion de sus Areas Agricolas. *Financiero*, Mexico DF.

(1991) Plan maestro para rescatar a Xochimilco. *Grafico*, Mexico DF.

(1991) Rescate Ecologico en canales de Xochimilco. *Uno Mas Uno*, Mexico DF.

(1990) Denuncian al DDF de continuar el Plan de Rescate Ecologico. *Tribuna*, Mexico DF.

(1990) Rechazan campesinos el cambio al Plan de Rescate Ecologico. *Tribuna*, Mexico DF.

(1990) Oculta Intereses Economicos el Proyecto de Rescate de Xochimilco. *Excelsior*, Mexico DF.

(1989) "Concertacion genuina" en Xochimilco, plantea Huerta. *La Jornada*, Mexico DF.

(1989) El plan para rescatar Xochimilco se hizo a espaldas de pobladores. *Uno Mas Uno*,

Mexico DF.

(1989) El rescate de Xochimilco debe hacerse de acuerdo al plan de los ejidatarios. *Uno Mas Uno*, Mexico DF.

Interviews

DuBroff, N. (2008) Interview with Alberto Gonzalez Pozo: UAM-Xochimilco. Mexico City.

DuBroff, N. (2008) Interview with Alfonso Gonzalez, Grupo de Estudios Ambientales. Mexico City.

DuBroff, N. (2008) Interview with Anonymous Government Biologist. Mexico City.

DuBroff, N. (2008) Interview with Anonymous Government Environmental Researcher. Mexico City.

DuBroff, N. (2008) Interview with Antonio Azuela. Mexico City.

DuBroff, N. (2008) Interview with Beatriz Canabal. UAM-Xochimilco. Mexico City.

DuBroff, N. (2008) Interview with Roberto Camacho Piña. Mexico City.

DuBroff, N. (2008) Interview with Clara Salazar. El Colegio de Mexico. Mexico City.

DuBroff, N. (2008) Interview with Dr. Vicente Morales. Mexico City.

DuBroff, N. (2008, 2007) Interview with Felix Venancio. Mexico City.

DuBroff, N. (2008) Interview with Jorge Legorretta. Mexico City.

DuBroff, N. (2008) Interview with Jose Genovevo Perez de San Luis Tlaxiatemalco. Mexico City.

DuBroff, N. (2008) Interview with Mariana Perez and Jaime Dehesa, Delegacion Xochimilco, Tenecia de la Tierra. Mexico City.

DuBroff, N. (2008) Interview with Victor Hugo Hoffman Aguirre. Mexico City.

Government Documents and Alternative Plans

Delegacion de Xochimilco (1989) Rescate Ecologico de Xochimilco. Delegacion de Xochimilco, Mexico City.

Delegacion de Xochimilco. (February 19, 1993) Nota Informativa. Delegacion de Xochimilco, Coordinacion de Comunicacion Social, Mexico City.

Departamento del Distrito Federal (1989) Plan de Rescate de Xochimilco: Summary. Departamento del Distrito, Mexico City.

Departamento del Distrito Federal (1989) Plan de Rescate Ecologico de Xochimilco. Departamento del Distrito Federal, Mexico City.

Direccion General de Comunicacion Social (1989) Boletin de Prensa No. 775. Direccion General de Comunicacion Social: Presidencia de la Republica, Mexico City.

Direccion de Turismo de Xochimilco (November 30, 31 1989) Foro sobre el Rescate Ecologico de Xochimilco. Departamento del Distrito Federal, Direccion de Turismo, Mexico City.

Ejidatarios de Xochimilco, San Gregorio, y Tlahuac (November 1989) Plan Ejidal Alternativo Para El Rescate Ecologico de Xochimilco y Tlahuac. Grupo de Estudios Ambientales A.C., Mexico City.

Jefe del Gobierno de la Ciudad de Mexico (2005) Resumen del Diario Oficial, Mexico City. (<http://74.125.45.132/search?q=cache:nl2gB3hJ0VEJ:www.ordenjuridico.gob.mx/Estatal/DISTRITO%2520FEDERAL/Delegaciones/AplAcu09.pdf+Area+Natural+Protegida+san+gregorio+atlapulco&cd=8&hl=en&ct=clnk&gl=us>). Last Accessed 5/19/09.

Museo de la Ciudad de Mexico (2002) Acuerdos del Primer Foro-Seminario sobre el Rescate Integral de Xochimilco Patrimonio de La Humanidad, Mexico City.

Toscano, Alejandra Moreno. (1990) Acuerdo de Concertacion para el Rescate Integral de Xochimilco. Secretaria de Desarrollo Social, Departamento del Distrito Federal, Mexico City.

GIS Data

Instituto Nacional de Estadistica y Geografia. 2000 Census. Mexico City. Provided by Metropoli2025.

Google Earth Pro, 2009

